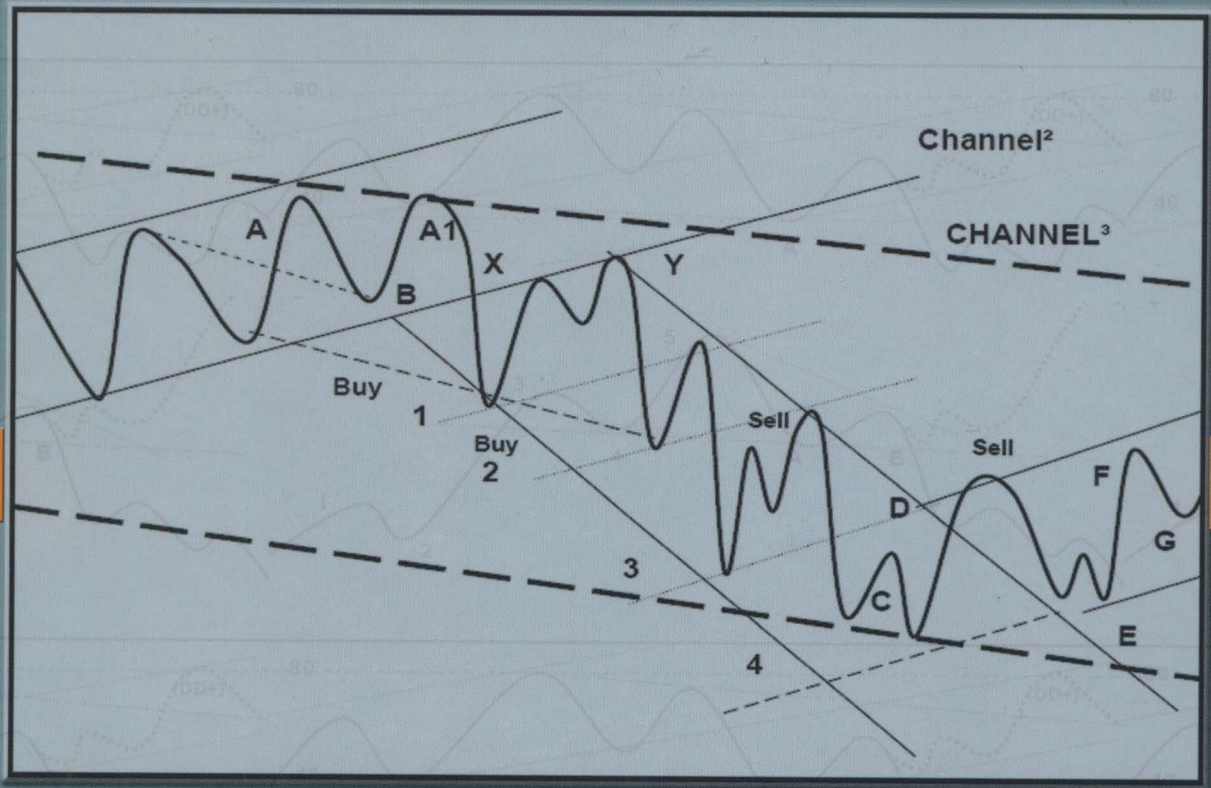


# RSI

## Logic, Signals & Time Frame Correlation



Walter J. Baeyens

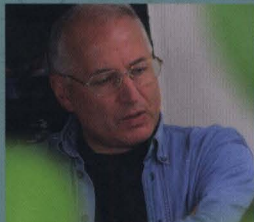
# RSI: Logic, Signals and Time Frame Correlation

**RSI: Logic, Signals & Time Frame Correlation** explores the new RSI analysis method developed by options trader Walter Baeyens. His *Time Frame Correlation* examines contradictory RSI signals that occur in different time frames and offers a logical interpretation. Complete with descriptive analogies and illustrative charts, this book offers a method for 3-D vision through multiple time frame RSI picture analysis.

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**Walter J. Baeyens**, a native of Belgium, started pilot training in the Belgian Airforce at age 18. After his retirement, he became a self-taught intellectual property consultant, employing three people. An occasional options traders since 1986, he made a “direct hit” in the 1987 stock market crash. In 2002, Mr. Baeyens sold his business and turned his full attention to the study of technical analysis, and in particular, of Welles Wilder’s *Relative Strength Index* (RSI).

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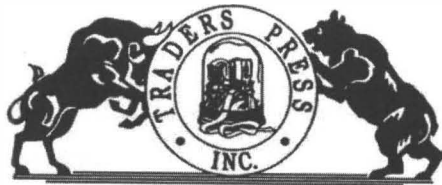
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# RSI

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*LOGIC, SIGNALS & TIME FRAME CORRELATION*

Walter J. Baeyens



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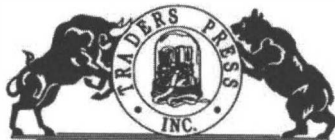
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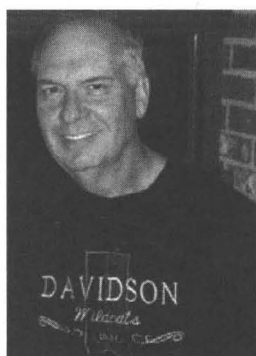
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## Publisher's Foreword



Three decades ago, Welles Wilder, a true pioneer in the art of technical analysis, developed RSI, the topic of this book. RSI has become one of the most popular and most widely used technical indicators available and is found in virtually every technical analysis software program. It has been my honor and privilege to have met Welles shortly after the publication of his groundbreaking book, *“New Concepts in Technical Trading Systems”* in 1978, and to have been his friend since. Traders Press has had a longstanding business relationship with Welles’ company, Trend Research, and his original work on RSI continues to this day to be a popular and highly sought after book, which is distributed by Traders Press.

Walter Baeyens, a Belgian trader, has developed his own take on the most effective way to use RSI in making trading decisions, which he shares in this, his first book. It is our hope that by sharing with the reader the benefit of his own research and work, this book will prove educational and beneficial to you in your own trading.

*Edward Dobson*

Edward D. Dobson, President  
February 22, 2008  
Traders Press, Inc.  
Greenville, SC



## Publisher's Dedication

Traders Press, Inc. proudly dedicates this book to Welles Wilder, the originator and "inventor" of RSI.



Welles Wilder and Edward Dobson in Greenville, SC circa 1990. Wilder is an avid collector of antique cars and this photo was taken when he visited Greenville and displayed his collection at an auto show.



RSI:  
LOGIC, SIGNALS & TIME  
FRAME CORRELATION



FOR MY DAUGHTER, CATHERINE.



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## PREFACE

How could I ever forget October, 19 1987? It was the day I fell in love with technical analysis! I had started to study the financial markets a few weeks earlier, looking for an opportunity to make some extra money. Back then, the internet did not exist, so most of the information I could gather came out of The Wall Street Journal. In the week leading up to the 1987 stock market crash, I decided to buy some Put Options.

My decision was based on what I had learned about the interpretation of the Relative Strength Index, or RSI, which looked pretty straightforward to me. Then, Black Monday was upon us. On that day, making money never looked easier. I could not believe my eyes as I watched the live pictures from Wall Street. I was making money by the minute, having a hard time keeping score as my Put Options' value literally exploded. Just watching the markets go my way and being on the right side gave me a powerful feeling. I was addicted!

I had never expected it to be so easy and, more importantly, it seemed that I was holding the key to further gains. My key was the magnificent RSI that had served me so well.

Looking back, these are sweet memories! I must conclude that this small victory over the markets involved more luck than skill. Let's just call it "beginners' luck." All things considered, when I say that I based my trading decision on RSI analysis, I should add that I was merely following the RSI guidelines published in some popular books and articles that were available at that time. Did I really believe that the path to easy success was paved with piece-of-cake RSI analysis? Unfortunately, I did.

You have probably already guessed what happened next. In the months and years that followed my initial "brilliant move" on Wall Street, I lost most of the easy money. The losses left me puzzled and disappointed, because I had been stubbornly acting on the RSI signals that I believed had correctly triggered my bearish profits back in October 1987. Still, while feeling duped by the obviously misleading publications I had studied, I remained convinced that the RSI had much to offer, if I only knew how to read it correctly. And so, I started my own search for alternative views on the RSI and new methods of interpretation. Still I remained convinced that the RSI had a lot to offer, if I only knew how to read it correctly. And so I started my own search for alternative views on the RSI and for new methods of interpretation.

The Relative Strength Index was introduced by J. Welles Wilder, Jr. in 1978 in his book, *New Concepts in Technical Trading Systems*. Wilder had been looking for a way to detect oversold and overbought conditions in the market. Great idea! It would be fantastic to have a tool that tells you when the market reaches absolute oversold or overbought conditions. Such a tool could accurately pinpoint trend reversals; the only requirement would be to take alternating positions in the market as it went through consecutive overbought and oversold conditions and rake in the profits.

Unfortunately, Wilder did not create an *Absolute* Strength Indicator. He developed the Relative Strength Index (RSI), which does not signal absolute overbought or oversold conditions. The RSI merely quantifies actual market conditions relative to earlier conditions within a given time period. Over the years, the RSI has become immensely popular with professional and private investors and traders. But could I find a way to use it profitably? Fortunately, as the immense data resources became available on the internet, it was not long before I discovered some interesting alternatives for the Wilder-interpretation of the RSI.

The method taught by Andrew Cardwell caught my attention. It complements Wilder's method and sheds a new light on how to put the RSI to work in a profitable way. Based on Cardwell's inputs, I found a way to advance and develop a new logic for the interpretation of the RSI by redefining the signals, as well as the limits of their validity. Most importantly, I was able to introduce the concept of Time Frame Correlation, adding an extra dimension to the RSI toolbox.

Today, technical analysis has become an industry in its own right. When surfing the internet, thousands of websites are available offering software, books, recordings, courses, consulting services and conferences on the subject of technical analysis and trading strategies. To my amazement I find that when discussing the use of the RSI, none of the publications refer to Cardwell's rules of interpretation, which is a pity.

In this book, I have condensed most of the relevant information that took me so long to gather from the early Wilder rules to the useful Cardwell rules and beyond, to my own RSI Channel interpretation with Time Frame Correlation insights.

Is technical analysis worth the effort at all? If this question means "can market moves be predicted," the answer is: yes *and* no! When I say that starting tomorrow, the markets will move up, down and sideways, I make a valid prediction that will surely come true. But that does not say much, does it?

Some people will say that the markets are moving "randomly." It is not always clear what this means either. In his book *Foiled by Randomness* (Thompson, NY), Nassim N. Taleb tries to convince us that market analysis is of no use because price action is random. However, it has been documented that patterns appear in statistical data describing selected, obviously random events. For math lovers, I refer to the "Arcsine Law" theory in respect of the random-walk properties of the financial markets.

Contrary to Taleb's, my conclusion is: If patterns emerge, the study of the events under examination, whether you label them "random" or not, should include the study of those patterns. The kind of randomness that never generates any patterns at all is very hard to come by, as any cryptology expert will confirm.

The "random vs. predictable" issue reminds me of the "determinism vs. probability" discussion in Physics and Philosophy. One may look at the issue in this way: If you start with enough dice players, you will end up with a dicer who rolls double-sixes ten times in a row! That is deterministic; it is bound to happen as determined by the laws of statistics. That particular person who is the winner of the contest may rightly consider

herself just extraordinarily lucky because any of her co-players could have hit that mark, which defines randomness.

So it looks to me like randomness and predictability are complementary, rather than mutually exclusive depending on your definition of those concepts. If randomness, chaos, the efficient market, game theory, prisoner dilemmas, or however you choose to qualify market action generates patterns, we may profit from studying them.

Some will argue that studying an indicator such as the RSI is useless because it merely repeats price information and expresses it in a different form.

It is certainly true that the “ultimate reality” in technical analysis is price. Sure, we start with price data and study it in order to draw conclusions about probable future price behavior scenarios. But if price is the ultimate reality to be studied, why not look at it from various angles? When scientists attempt to define the properties of an object, they put it through all kinds of tests, observing its behavior under various unusual conditions. Each one of those tests reveals a certain aspect of the object’s “reality” and this knowledge enables the scientists to anticipate the object’s behavior under varying conditions in the future. In my opinion, putting price data through a mathematical equation, such as the RSI formula, allows us to examine a relevant (but usually hidden) aspect of price reality that would otherwise remain undetected.

So yes, I do indeed believe that technical analysis beats flipping coins when it comes to profiting in the financial markets. In the following pages, after having reviewed the old rules and insights, I aim to demonstrate that the best way to analyze the RSI is to examine its behavior in relation to its channels in various time frames and to correlate these pictures.

I hope that my book contributes to a better understanding of the RSI and that it will offer an extra tool to analysts, traders and investors who are willing to put in the effort to assemble the RSI puzzle.



# CHAPTER ONE

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OLD MYTHS AND NEW CONCEPTS



## PART I

### GETTING STARTED

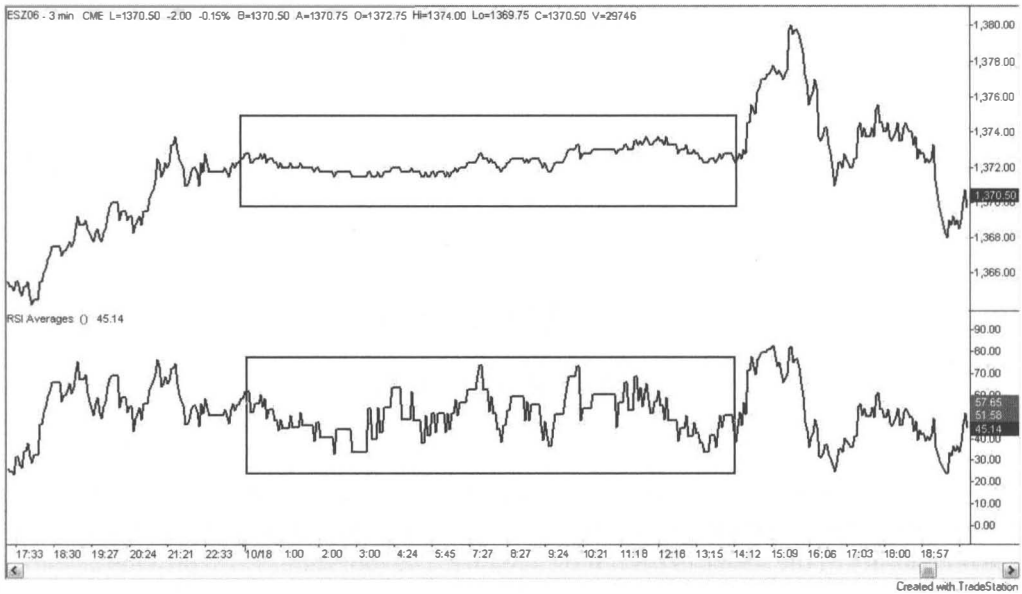
We need a tool that will provide a workable hypothesis about market behavior in the near future. This hypothesis would include market direction, timing, price target(s) and the probability of the scenario becoming a reality. The tool should also provide an early warning when it turns out to be wrong, so losses can be limited. The Relative Strength Index is such a tool. It allows us to enter the market with confidence, determine the risk/reward ratio, exit positions early if the hypothesis is wrong (taking a small loss) or ride the market to a target price and beyond when the hypothesis is right.

J. Welles Wilder, Jr. developed the Relative Strength Index as a tool to detect overbought and oversold conditions in the market. To do this, he compared the average up and average down price movements within a given period of time in the past. The look-back time window favored by Wilder for the calculation of the RSI values was 14 periods. Consequently, the method described in this book pertains to 14-period RSI data calculation, using closing prices. This means that no conclusion should be drawn from an RSI signal until the *closing price* is in. Although this seems to be common sense, in the heat of trading, one is often tempted to act prematurely.

The RSI charts in this book feature the same 14-period setting, except where mentioned (some charts only cover 3 periods). Each market has its own peculiarities but, generally speaking, my RSI analysis method is applicable to all kinds of markets, including stocks, futures, currencies, treasury bonds, interest rates and indices in all time frames.

A word of caution: In very short time frames, the RSI is volatile, frequently hitting extreme highs and lows and generating contradicting signals in rapid succession. Also, if the overnight sessions in futures markets are not plotted, the RSI readings at the opening of the regular session may look irrational in the short time frames because of the overnight gap in RSI data.

In flat markets, the RSI will generate signals while prices go nowhere. It is important to avoid getting caught during lackluster lunchtime trading periods or overnight sessions. For RSI signals to work in terms of anticipated price action, there should be some degree of price action momentum and volatility in the market.



**Figure 1.1** S&P Futures Overnight (3-Minute)

After 14 periods, the RSI starts fluctuating between 30 and 70, while prices go nowhere.

## PART II

### THE RSI HALF-PIPE

Watching RSI fluctuations on a chart is like observing a skater going up and down in a half-pipe. Imagine looking at the skater from a bird's viewpoint, high above. From this perspective, the half-pipe looks like a flat, rectangular metal surface and the skater goes back and forth between the top and bottom edges. The half-pipe is the RSI chart, and its extreme values of 0 and 100 are the edges where the skater seems to be suspended before accelerating down the slope in the opposite direction. The skater's speed is highest in the middle of the half-pipe. As he zooms upward on either slope, his speed slows dramatically, then drops to zero as his course reverses.

Due to the mathematical constraint of being squeezed into a range of 0 to 100, the distance traveled by the RSI in its chart is not directly proportional to the change in price that caused the move, as it is a logarithmic function. In fact, just like the skater in the half-pipe, the RSI has its greatest velocity when crossing the middle of the RSI chart at the RSI 50-line. It will rapidly and increasingly slow down when approaching the upper and lower edges of the chart.

In practice, a relatively small change in price can cause a big move in the RSI value when it travels around the 50-level. However, large price changes are required to move the RSI value a little, once it approaches the extremes, as if an ever-increasing momentum were required to push it up an increasingly steep slope.

The values where the Relative Strength Index runs into rapidly increasing resistance are the 66.6 and 33.3 levels. In fact, this behavior is a consequence of the nature of the RSI equation itself, designed to limit the course of the RSI within its 0 to 100 range.

In other words, a small move in the RSI value, when it is near extreme levels, corresponds to a relatively big move in price!

### **PART III**

#### **A SMALL DOSE OF RSI MATHEMATICS**

When studying the RSI(14) – meaning the RSI takes into account a 14 period look-back window (14 days in the daily charts or 14 minutes in the 1-minute chart) – we are looking at the Relative Strength (RS), expressed by the price ratio:

$$\frac{\text{Average UP (on close) over last 14 periods}}{\text{Average DOWN (on close) over last 14 periods}}$$

This ratio is pressed into a 0 to 100 scale by the following formula:

$$\text{RSI} = 100 - (100 / 1 + \text{RS})$$

If all of the closing prices had been UP over the given period, the RSI would rapidly rise to 100, since the ['RS'] would tend to be infinite causing the [(100 / 1+RS)] to tend to be zero.

As such, this makes the equation unsuitable for use because the resulting RSI values will be higher for a slow (but uninterrupted) price rise than for a strong price rise that suffers the occasional down retracement.

In order to avoid this effect, the Welles Wilder approximation system was adopted. Instead of taking each of the 14 UP or DOWN values of the look-back period into account, Wilder resolved to take the average UP or DOWN of the last 13 periods. This value was multiplied by 13 and added to the value UP or DOWN of the most recent period number 14. Then, this sum was divided by 14. This calculation also made the daily manual RSI calculations much easier to manage as today's value was added to the latest average and the new value was divided by 14.

For an RSI(14) calculation using daily data, the RS equation shown above is changed and the values for the Average UP and Average DOWN are calculated as follows:

$$\text{UP} = \frac{[(\text{Average UP last 13 days}) \times 13] + \text{Value UP today}}{14}$$

$$\text{DOWN} = \frac{[(\text{Average DOWN last 13 days}) \times 13] + \text{Value DOWN today}}{14}$$

The fact that the value of the first day of the RSI(14) analysis is based on the average of the 13-day period preceding that day means that today's RSI calculation, to a certain extent, incorporates daily data older than 14 days. This method of calculation smoothes out the RSI and eliminates the unwanted tendency of the RSI to move to extremes after 14 periods of uninterrupted price increases or declines.

Consequently, a time span covering a minimum of 15 times the look-back period needs to be observed in order to obtain reliable RSI values. This means that for an RSI(14) *daily* study to be reliable, at least 210 days of data need to be available.

### **The RSI Ratio Table**

For a given look-back period, when the UP Average equals the DOWN Average in the RS calculation, the RSI will display a value of 50 as the ups and downs balance.

When the balance shifts in favor of the UP or DOWN Average, the RSI value will rise or fall, but not in a directly proportional or linear manner.

The following table shows the UP/DOWN ratio required to move the RSI to the displayed values:

RSI = 90	UP/DOWN = 10 / 1
RSI = 80	UP/DOWN = 4 / 1
RSI = 75	UP/DOWN = 3 / 1
RSI = 66.6	UP/DOWN = 2 / 1
RSI = 50	UP/DOWN = 1 / 1 NEUTRAL BALANCE
RSI = 33.3	UP/DOWN = 1 / 2
RSI = 25	UP/DOWN = 1 / 3
RSI = 20	UP/DOWN = 1 / 4
RSI = 10	UP/DOWN = 1 / 10

This table clearly illustrates that the RSI value meets increasing resistance when approaching the extreme values of 0 and 100. A rise of 10 points in the RSI from 75 to 85 must correspond to a price move UP that is much more significant than a price move UP corresponding to a 10 point RSI move from 50 to 60. The half-pipe effect in the RSI becomes clearly visible above the 66.6 level and below the 33.3 level, where the RSI must travel ever-steeper slopes.

## **PART IV**

### **OLD MYTHS**

Now, for the sake of completeness we are ready to look at the initial RSI rules. I am sure that you are already familiar with some of them, as they keep appearing in many of the present-day technical analysis manuals and websites.

Here is what I learned back then. The main RSI signals, we were told, were:

- The RSI hits or exceeds values of 70 or 30, signaling overbought and oversold conditions respectively.
- Divergence between price and the RSI signals imminent trend reversals.
- The RSI crosses the 50-line up or down, meaning the market turns bullish or bearish.
- The swing failures, meaning the RSI reverses course.

Let's have a closer look at each one of these points.

#### **Overbought and Oversold Levels**

As demonstrated earlier, the mathematical resistance of the RSI is a built-in feature that takes effect around the 66 and 33 levels. This means that more often than not, the Relative Strength Index value will have a hard time moving past these levels. But does this justify the conclusion that these levels signal the market trend is exhausted?

We know that a tiny movement in the RSI value, when it is over 66 or under 33, corresponds to a relatively large move in price. This means that at the RSI 70-level, the best may be yet to come in a strong uptrend. This is not in terms of further important jumps in the RSI value, but in terms of prices moving up strongly. Conversely, in a downtrend there is a huge down potential for prices while the RSI value is below 33!

Also, in my view, any claim relative to RSI signals should specify from which time frame the signal is taken. Imagine that we have been in a strong uptrend for the last five trading days. Would it make sense to determine that this rally is coming to an end just because the RSI hits the 70-level in a 15-minute chart? In reality, the 15-minute RSI will hit the 70-level several times a week in a rally of some magnitude.

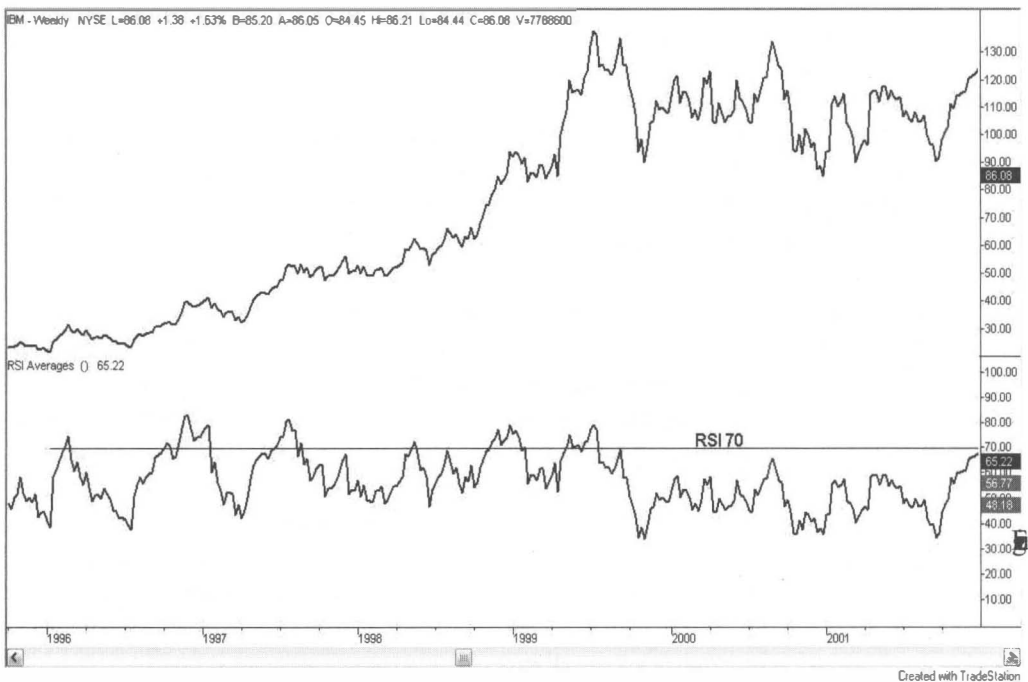
When the 15-minute RSI reaches the 70-level, the RSI value on the daily chart may be at 60, with plenty of UP potential. We may be tempted to assume the daily time frame was the main object of Wilder's research, but it is clear that we will need to find a way to correlate the various RSI pictures. It is not hard to imagine the following scenario: The RSI hits 30 in the daily time frame, allegedly signaling oversold conditions, while the weekly RSI may be at the 40-level, suggesting there is still a distance for the market to go on the downside.

From this illustration, it becomes clear that RSI levels signal different things when taken from different time frames. Hence my conviction that any conclusion drawn from a given RSI picture will be incomplete unless it is correlated to other time frames.

What should be made of Price/RSI divergence? Imagine that the daily RSI hits 75. According to Wilder, this would indicate that the rally is about to end, while prices continue to hit new highs with the RSI meandering to the downside. (This is the definition of Price/RSI negative divergence). In this example, some will say the RSI worked off its overbought condition. However, since prices kept rising, there really never was an overbought condition.

There is no such thing as an overbought or oversold RSI and there are no such things as *absolute* overbought/oversold price conditions. In fact, there are plenty of examples of up-trending markets with major price jumps taking the RSI well above 70, even in the weekly time frame. In bear markets, you will often see prices accelerate their slide as the RSI value appears to be locked down below 30 for an extended period of time.

My advice: Do not let the 70 and 30 RSI levels fool you into initiating countertrend positions; it needs to be put in the correct perspective.



**Figure 1.2** IBM Weekly

This weekly chart shows a strong rally in IBM from 1996 to 2000. I have drawn a horizontal line at the 70-level. If we had blindly applied the Wilder rules for RSI interpretation, we would have sold IBM in Quarter 1 of 1996, when the RSI reached the 70-level. But look what happened after that. After a mild drop into mid-1996, the

market rallied and the RSI reached the 80-level by the end of 1996. Prices continued to rise, while the RSI peaked well above 70 several times in 1997 and 1999. The fact that the RSI never dropped below 40 until Quarter 4 of 1999 is typical of such a strong rally. This chart is not exceptional. There are plenty of examples that show the RSI exceeding 70, after which the rally continues and strengthens. I believe it is closer to the truth to say that the rise of the RSI above 60 is typical of the *start* of a rally than it is to say that the RSI reaching 70 signals the *end* of the rally.

### **RSI/ Price Divergence**

Price/RSI divergence provides another source of confusion. Many mainstream publications about the RSI tell you that this kind of divergence signals the end of the current trend. Some even list divergence as buy and sell signals!

Unfortunately, as simple and as good as that may sound, divergence can be a misleading interpretation and (as far as I know) no one has offered any satisfactory alternative views.

Missing here is the specification of the time frame reference when trying to anticipate what Price/RSI divergences will cause in the longer run. All of this talk about divergence makes them look special, but they are not. They occur frequently because they are inevitable; thus we should not search for any magical properties here.

After the initial trend pushes the RSI to its limit, given the significant relative increase in momentum in the recent past, the RSI flattens out or even declines, simply because the *rate* of increase in momentum is decreasing, while the trend keeps going. More than anything, the existence of Price/RSI divergence confirms the present trend. Look at the evidence.

A negative divergence occurs when price reaches a new high, while the RSI only makes it to a lower high. By definition, when prices hit new highs, we are looking at an uptrend. A positive divergence occurs when prices hit lower lows, while the RSI values already rise, hitting higher lows. By definition, when prices reach lower lows, we are looking at a downtrend. So, an interesting point about Price/RSI divergences is that negative divergence occurs only in an uptrend and positive divergence occurs only in a downtrend. Obviously, this statement is an oversimplification, but should be included because this is how Andrew Cardwell treats divergence in his Trend Determination Checklist. He sees divergence as one of several symptoms accompanying a trend. It says that the market is in an uptrend as long as there are higher highs in price. To that I would add: That is correct, whether or not there is a negative divergence. In other words, do not worry about negative divergence until you see lower highs in price.

***Divergence occurs frequently and it does not have any special significance.***

I like to think of Price/RSI divergences as follows: In a strong downtrend driven by longer-term traders that continues for several weeks, the RSI value in the hourly charts will be propelled down below the 30-level in a matter of days. But the price decline is far from over. What happens next? The RSI value is pushed even lower, let's say to the

15-level. But the price drop is still not over. The daily RSI value drops below the 38-level and appears to have further to go. Then what happens? The hourly RSI, at some point, hits its minimum value, meaning the maximum momentum of the decline is unable to push the RSI down any further. Remember the extraordinary down/up ratio that is required (in the last 14 hours) to push the RSI below the 20-level and the 10-level.

The RSI is being compressed at the bottom of the hourly chart, but the price drop continues (let's say that the daily RSI reaches 32). The hourly RSI has nowhere to go but up, as down momentum in relative terms is not increasing sufficiently to depress it further. Consequently, the RSI starts to curl up in the hourly chart, while prices continue their drop.

We will treat RSI divergence in accordance with the general rules that will be defined later, meaning they need to be understood as a particular RSI behavior within RSI channels.

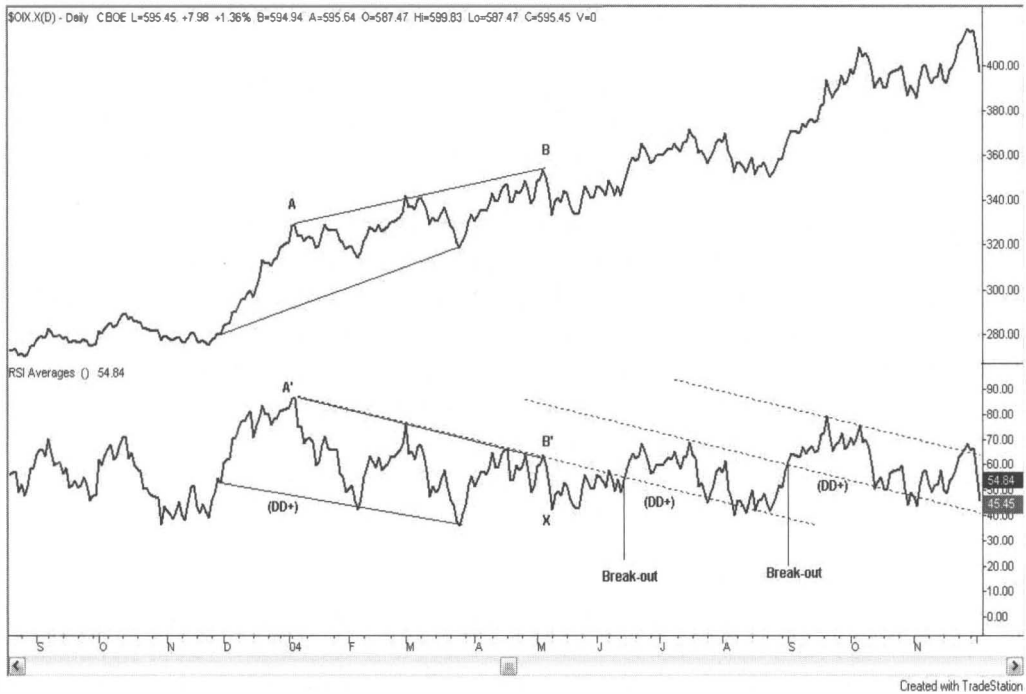


**Figure 1.3** Daily Oil Index

In this Daily OIX (Oil Index) Chart, there are two positive divergences. The first one starts at Point 1 in the RSI chart. While prices reach a new low in October 2002, the RSI has been rising since August. It is clear that this positive divergence does not lead to a rally, as prices resume their decline in January 2003, without exceeding the last top of October 2002. What follows is a lower low in price in January 2003.

The second positive divergence starts at Point 2. This time it persists long enough to lead the RSI within its ascending channel into bull territory and the appearance of a buy

signal by the end of May, signaling the start of a rally. The bullish signal in the RSI is marked by the acronym (DD+) within the ascending RSI channel.



**Figure 1.4** Daily Oil Index

In this chart, the point of interest is the negative divergence between price and RSI in the period between Points A and B. Here we see prices reach consecutive higher highs, while the RSI from Points A' to B' declines. Note the rapid price rise into Point A, corresponding to the initial price thrust and steep increase in momentum, causing the extreme RSI reading at Point A'. This reflects the high rate of change in momentum in the recent 14-day period. Past Point A, any momentum change will be compared to the high earlier values in the recent past, hence the decline in the RSI value despite the continuation of the rally.

Still, the negative divergence does not lead to a trend reversal to the downside. Quite the opposite happens, as prices continue their rise past Point B. Again, it is not hard to find many more examples where a negative divergence does not lead to the beginning of a bear market phase.

Price/RSI divergence is not an exceptional signal. It occurs frequently, as it is inevitable, and does not warrant any special treatment. It is just one way for the RSI to escape its mathematical constraints.

### **The RSI 50-Line**

The 50-level in the RSI value signals a balance between price moves up and down within the 14-period look-back window. This leads some people to think when the RSI crosses the 50-line to the upside, the market must be turning bullish, and when the RSI drops below the 50-level, the market is turning bearish.

From our earlier discussion, you already know that this rule is too simplistic. Again, there is no specification about the time frame from which this RSI reading is taken. It is possible to see the hourly RSI drop below the 50-level while the daily RSI value is at 60.

The RSI around the 50-level sometimes shows evidence of the indecision in the market. Such is the case when the RSI is oscillating in smaller moves above and below the 50-level, building an RSI triangle that is often centered on the 50-level. The corresponding price action features either a narrow trading range or the formation of a price triangle. This RSI behavior illustrates the indecisive fight between equally strong bulls and bears in that particular time frame. At some point, the RSI breaks out of the triangle one way or the other. The RSI triangle is an interesting pattern to watch for, as it indicates a swift move in both the RSI and price in the near future.

### **Failure Swing in the RSI**

Failure swings occur when the RSI drops below the level of the trough in an M-formation or when the RSI rises above the level of the peak in a W-formation. These signals are more significant when they occur within the oversold ( $< 30$ ) or overbought ( $> 70$ ) zones of the RSI chart. The general consensus is: these conditions are met, a price correction is imminent. There are problems with this theory.

First, when comparing different points on the RSI graph, the relevant reference lines are not horizontal lines (such as the 70-level or 30-level lines) but slanted lines, defined by the upper and lower boundaries or their parallels of RSI channels.

Second, the failure swing, especially near the extremes of the RSI chart, often leads to the start of a Price/RSI divergence. This means that after a failure swing down has occurred, the RSI often continues downwards and rebounds off of a lower low, while prices continue going up. After a failure swing up, especially near RSI extremes, the RSI may continue upwards, while prices just keep falling, defining a *positive* Price/RSI divergence.

In later chapters we will learn that these failure swings may be relevant if and when they coincide with particular RSI reversals, namely those that cause the formation of bullish or bearish signals, labeled (DD+) and (DD-).

## **PART V**

### **NEW IDEAS**

#### **New RSI Realities**

Let's leave the RSI world as described by Welles Wilder and examine some new ideas brought forth by Andrew Cardwell. Cardwell, who acknowledged the inherent weaknesses of the old rules, developed some interesting insights. By advancing the art of RSI analysis, his work enables us to use the Relative Strength Index to:

1. Establish trend in a given time frame
2. Anticipate trend reversals
3. Detect buy and sell signals
4. Calculate price targets
5. Calculate risk-reward
6. Determine trade entry and exit points and stop-loss levels
7. Establish significant trend lines and support/resistance lines

In this chapter, we will examine some of the items in this list, while some will be reviewed when the signals and their validity are redefined.

These insights take the interpretation of the RSI to a new level. What made the difference? In my opinion, the major breakthrough was the discovery of specific buy and sell signals in the RSI. The method for Price Target Calculation, associated with these signals, is taken from the Fibonacci method. Also, Wilder's 70/30 rule was redefined and a more realistic and useful way of looking at specific RSI levels was introduced.

Let's take a closer look.

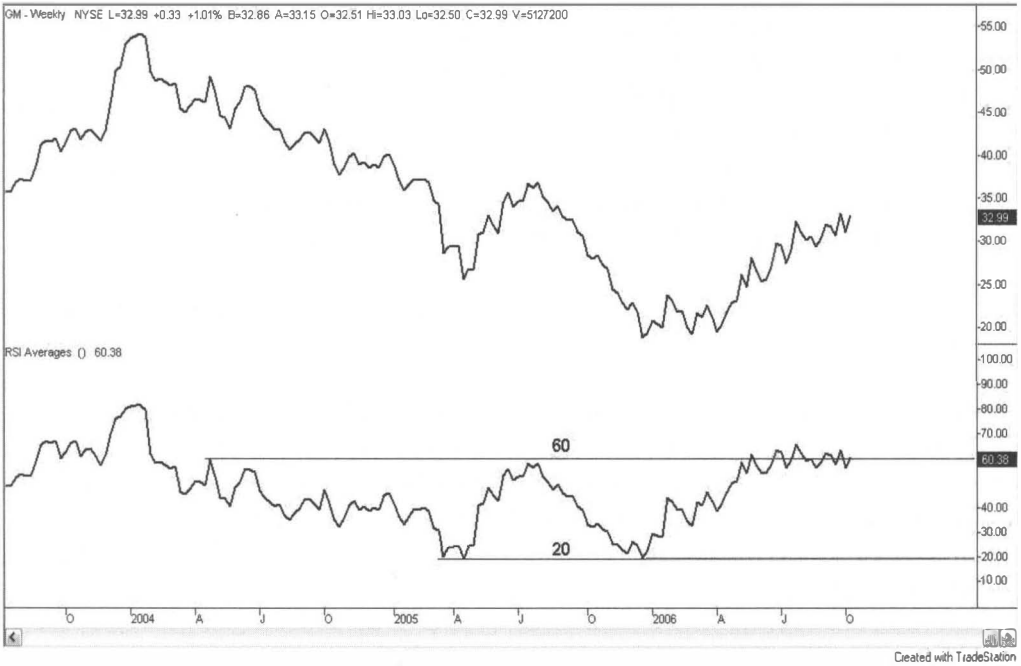
#### **Significant RSI Ranges**

It does not pay to look for a specific level where a market can definitely and absolutely be called overbought or oversold. As we saw in our earlier discussion, it is possible for the RSI in an uptrend to rise to a value of 75 and retrace to 65, while prices keep going up at the same time. This is how negative divergence forms. From 65, the RSI may reverse up, rising back to 75, while prices rally to new highs.

In practice, it appears to be more relevant to look at the *range* where the RSI is moving. Obviously, the RSI travels mainly in the area between 30 and 70 because of its mathematical constraints. However, in bull markets, positive market sentiment shifts the RSI range upward by about 10 points, where the range rests between 40 and 80. This allows an uptrend in a particular time frame to be defined by simply looking at the value range where the RSI is moving.

Conversely, in downtrends, negative sentiment causes the RSI range to shift downward about 10 points. This leaves an RSI value traveling between 20 and 60, which is symptomatic of a downtrend in a specific time frame.

While the figures for the uptrend and downtrend RSI ranges do not constitute make-or-break limits, these important guidelines can be formulated. For a given time frame, the RSI moving within the range from (roughly) 40 to 80 is symptomatic of an uptrend. The RSI moving within the range from (roughly) 20 to 60 is symptomatic of a market downtrend.



**Figure 1.5** Weekly GM

In this weekly chart of General Motors, prices drop from about \$55 to \$20 during 2005, before rebounding in 2006. While the RSI value reaches well over 80 in January of 2004, it never exceeds the 60-level after the price drop begins in April 2004. Also note that the 30-level in the RSI is broken. The RSI value reaches the 20-level in April and December 2005. Obviously, this is not a case where it would have been a good idea to have purchased General Motors when the RSI reached the 30-level.



**Figure 1.6** Weekly IBM

This weekly chart shows the strong rally in IBM from 1996 to 2000. It is characterized by the RSI staying well within the 40 to 80 range, thus identifying a bullish market. The violation of the 40-level in the RSI (Quarter 4 of 1999) marks the end of the strong bull market and the start of a consolidation phase, with the RSI unable to exceed the 70-level in 2000 and 2001.

### A Special Kind of Divergence

We know that the shift in the value of the RSI is not directly proportional to the change in the underlying price. As the RSI measures the relative rate-of-change of prices, (when the rate of the price increase begins to lose steam in a rally lasting over 14 periods), the RSI value may actually start to decline, while prices are still going up at a more moderate pace. It is possible, in an uptrend, to see RSI values decline for a while in that particular time frame. In a downtrend, rising RSI values often appear.

If we combine this characteristic with the fact that the RSI tends to speed up when approaching the middle of the RSI range in the half-pipe effect, it becomes clear that some seemingly very unusual RSI chart configurations are possible. These configurations could include rising prices combined with rapidly declining RSI values, or falling prices combined with rapidly rising RSI values. These are the properties that make this indicator interesting, and it is important to know how to interpret them.

We have already noticed that when the RSI value hits the 80-level or higher, this does not mean that the uptrend is over; conversely, a downtrend is not simply ending because the RSI has reached the 20-level or lower.

So, how do prices manage to move higher after they have propelled the RSI to 80 or 90?

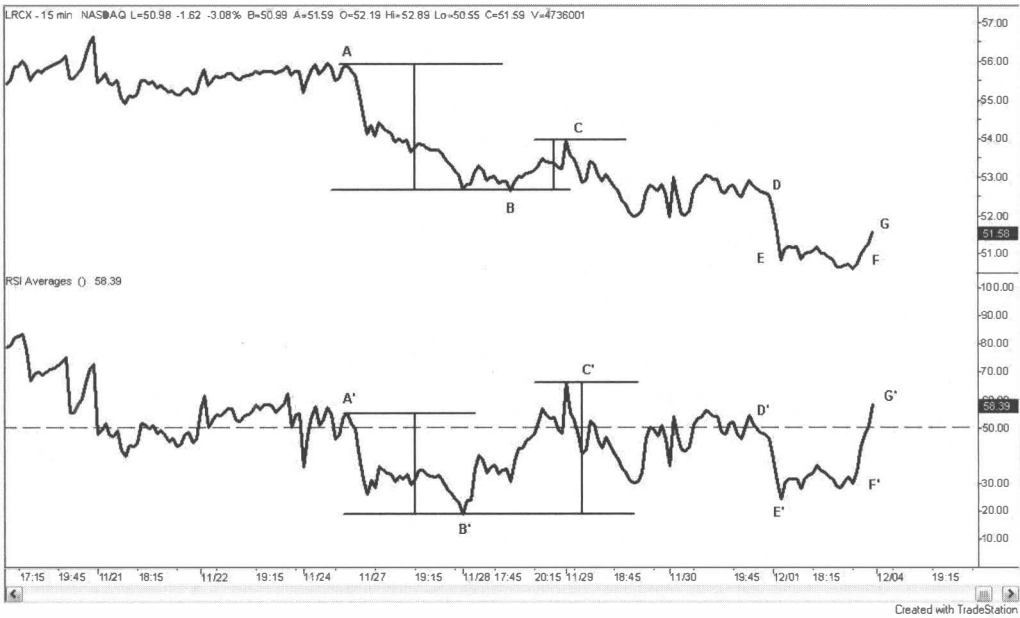
In simple terms, we could describe this phenomenon by saying that the RSI takes a few steps back when hitting its limit, while prices barely move before charging upward again. Each time the RSI reverses up, prices rally to new highs. If the RSI fails to attain new highs in this process, we are witnessing the formation of a *negative Price/RSI divergence*.

After hitting its mathematical resistance in a downtrend, the RSI value may pop up to a less extreme reading, before resuming its plunge with renewed vigor, taking prices to new lows.

In some instances, the rapid changes in the RSI value are markedly out-of-proportion with the change in price. These changes are the basis of Cardwell's buy and sell signals.

This is the underlying logic: If you notice RSI moves that are obviously out-of-proportion with the corresponding price moves, expect prices to resume their trend with a vengeance when the RSI reverses. This provides the basis for an important guideline: In an out-of-proportion RSI move, you are almost always on the wrong side of the market if you follow the RSI. In an uptrend, if the RSI falls dramatically while prices hardly move downward, do not be fooled into taking a short position; when the RSI bounces back, prices will likely move to new highs.

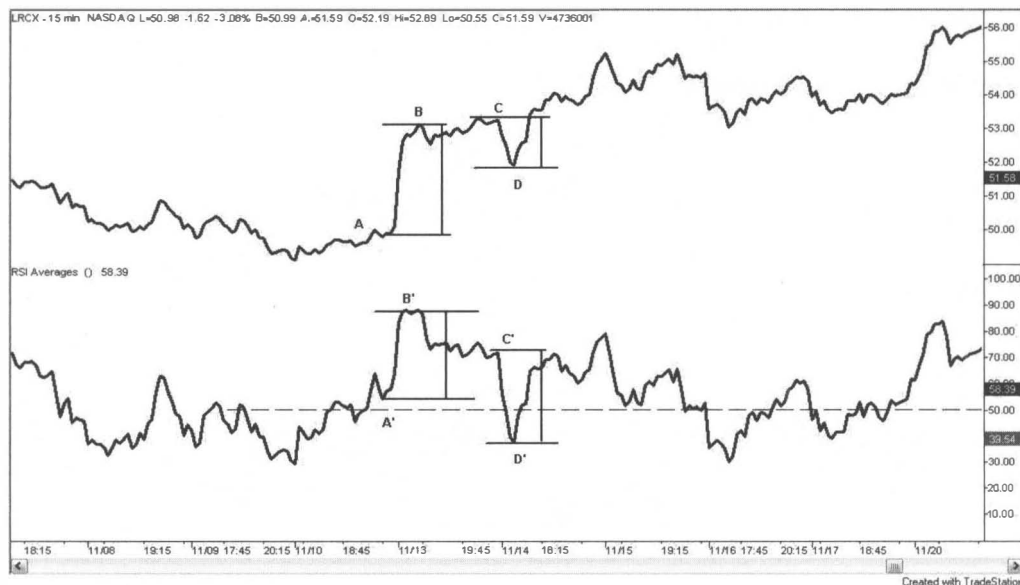
In a downtrend, when witnessing an RSI jump, while prices hardly move, do not be fooled into a long position. Once the RSI reverses back down, prices will likely fall to new lower lows.



**Figure 1.7** LRCX (15-minute)

This chart illustrates the “peculiar divergences” between price and the RSI. Note the differences in variation in price versus the RSI. The price drop from Level A to Level B corresponds to a modest decline in the RSI from A' to B'. Point B' in the RSI is near the 20-level, where the RSI is being compressed. In contrast, the minor price rebound from Level B to Level C propels the RSI to Level C'. The RSI move is markedly out-of-proportion with the rise in price.

The same thing happens from Points F' to G', where the RSI has a significant jump after a minor price rebound (compared to D to E) from Level F to G. These out-of-proportion RSI moves, which I will relabel Disproportional Displacements (DD), form the basis of the buy and sell signals in the RSI.



**Figure 1.8** LRCX (15-minute)

This chart illustrates the Disproportional Displacements (DD) in the RSI in bullish territory.

## PART VI

### THE CARDWELLIAN SIGNALS

#### **The RSI Range-Shift**

To quickly determine the trend in a particular time frame, look at the RSI chart and check the range in which the RSI is moving. If the RSI is seen meandering roughly in the range from 40 to 80, the trend must be up. The range from 20 to 60 is typical for a downtrend. Consequently, we can expect to see a “range-shift” whenever the trend changes in the examined time frame. Although a range-shift is likely to remain undetected until after the fact, it is still a useful signal.

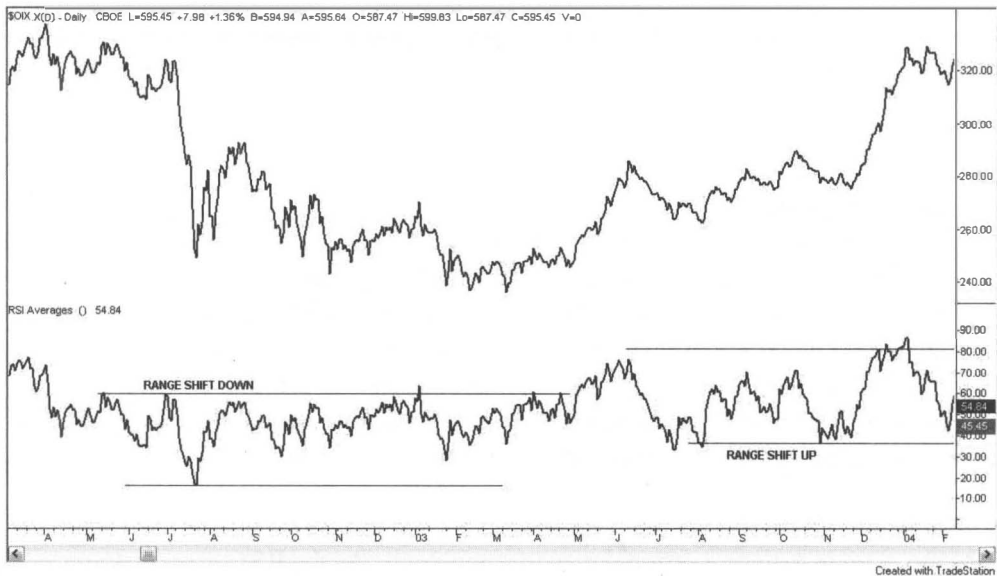
A range-shift down occurs whenever the RSI fails to rise above 60 in a rally after an unusually large price drop. Imagine the RSI moving in bullish territory, while prices are steadily rising. At a certain point, a price correction down takes the RSI lower to the 25-level (in bear territory). If the rally in the market is to continue, the subsequent rebound in price should see the corresponding RSI value exceed the 60-level, back into bullish territory. If the RSI fails to break above the 60- to 65-level and reverses downward from there, the price correction may have signaled the start of a trend reversal.

We can now conclude that we should use two interesting RSI levels as *main* references to determine the market's mood: The RSI values of 40 and 60. In the smaller time frames, RSI range-shifts will be observed more often than in the larger time frames, simply because the average day-to-day moves in the market are large enough to send the RSI whipsawing up and down near its extremes. Still, a market that is unable to push the RSI value above the 60- to 65-level in a small time frame (e.g. 10 minutes) is signaling extreme weakness.

In a very strong market, price corrections to the downside may be so shallow that they do not even cause the RSI to dip below 40 in the smaller time frames.

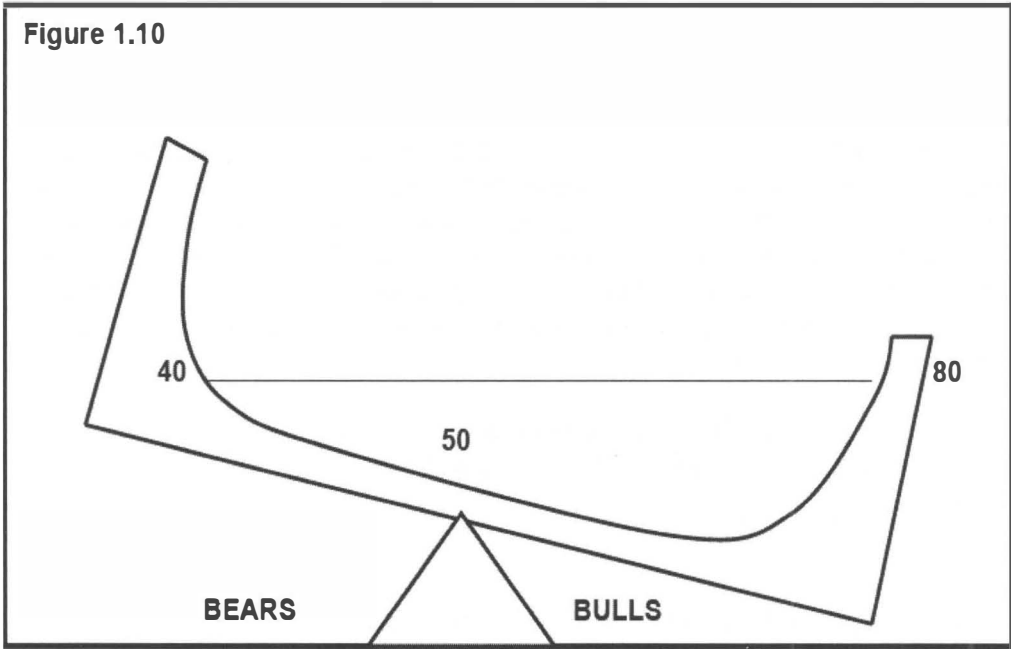
Figure 1.9 shows a range-shift using the skaters' half pipe concept. If we return to the idea that an RSI chart is similar to a skaters' half-pipe, we can imagine this half-pipe balancing on a pivot point, with the bulls on one side and the bears on the other. At the side corresponding with the 100-level in the RSI, the bulls are trying to tilt the balance their way. If they succeed, the market turns bullish and the half-pipe is tilted in such a way that a skater (the RSI) will have no problem reaching higher-than-usual RSI levels near the 100-edge. To do this, a swing-back to the 40-line on the opposite side will suffice to build up the required momentum. Conversely, in a bearish market, we can imagine the half-pipe being tilted the other way with the skater (the RSI) going back and forth between the near-zero level and the 60-level.

An RSI range-shift could be visualized by imagining the half-pipe tilting either way as time passes, forcing the skater out of the bear part of the half-pipe, then into the bull part and back.



**Figure 1.9** Daily Oil Index

This daily chart of the OIL INDEX offers a good example of RSI range-shifts. In May 2002, the RSI is unable to exceed the 60- to 65-level before the price drop. During the subsequent bear phase of the market, the RSI is unable to exceed the 60-level, while dropping as low as 20 in July 2002. In 2003, the RSI drifts upward and is finally able to break above the 60-level in mid-2003. The RSI drop following this range-shift in June and July of 2003 is markedly out-of-proportion with the corresponding decline in prices, but still remains within bull territory. This illustrates the rule that you should not be short when the drop in the RSI is out-of-proportion with the decline in price.



**Figure 1.10** The RSI Half-Pipe

**Buy and Sell Signals**

We have already briefly discussed the emergence of peculiar divergences in the RSI, where the fluctuations in the RSI are markedly out-of-proportion with the corresponding moves in price. A buy signal is formed whenever this type of RSI behavior results in the following situation: The RSI reverses up from a lower low, while price rebounds from a higher low. In other words, a shallow correction down in price to a higher low has caused an out-of-proportion drop in the RSI to a lower low. As the RSI reverses back up, we may expect prices to resume their rise, reaching new highs.

A sell signal is formed when a shallow price retracement up to a lower high causes the RSI to move up in a disproportional way to a new high. As the RSI reverses down, we may expect prices to resume their decline with a vengeance, reaching new lows.

This may sound complicated. However, in practice, these particular divergences are easy to find, once you know they exist and what they look like.

Andrew Cardwell called these signals *positive* and *negative reversals*. It was his view that the emergence of a positive reversal in a downtrend meant the trend was changing to an uptrend. In an uptrend, the emergence of a negative reversal marked the point where the trend changed to a downtrend.

In my opinion, the designation positive or negative “reversal” is not appropriate, as the subject signal often merely confirms the *continuation* of an existing trend. Only when these signals appear for the first time, could they be seen as “reversal” signals. These signals were added to his Trend Determination Checklist, as he claimed that positive reversals or buy signals will only show in an uptrend, while negative reversals or sell signals only show up in a downtrend. If a market is in a downtrend and suddenly a buy signal is detected, it could be concluded that the trend had changed to an uptrend. In this case, the use of the term “reversal” is justified, but in a strong trend, a sequence of signals of this type can be found, each one confirming the strength of the existing trend.

We must specify the time frame from which these signals are supposed to be taken. I would like to add that these signals are indicative of the trend in the time frame where they are detected.

The Trend Determination Checklist, including the RSI buy and sell signals, suggests that there is an easy way of determining the existing trend in an absolute way. In reality, applying the checklist to different time frames leads to different conclusions. Trend is obviously time frame dependent. For instance, it is important to point out that signals taken from the hourly RSI should not be used for long-term trend determination. In other words, when discussing the actual trend, always clarify the referenced time frame. It is not unusual to detect a buy signal in the *daily* time frame, while a sell signal shows up in the *hourly* time frame.



**Figure 1.11** Weekly INTEL

This weekly chart of INTEL offers some relevant examples of buy and sell signals in the RSI:

Points A'- B'

The RSI is lower at Point B' than it was at Point A', while the corresponding price at Point B is higher than at Point A. This “peculiar divergence” is a buy signal. Also note that the RSI signal occurred in bullish territory, well above the 40-level. The buy signal could be called a “reversal” signal because it is the first buy signal in this time frame leading to a rally.

There are other buy signals at Points C'-D', D'-E' and F'-G'. These are valid buy signals that confirm the strength of the ongoing rally.

Points X'-Y'

The RSI is higher at Point Y' than it is at Point X', while Price Y is lower than Price X. This is a “strong” sell signal because the signal is formed within a very tight M-shaped pattern. A second sell signal is defined at Points Y' and Z'. Past Point Z', a positive Price/RSI divergence leads to the end of the decline.

**RSI Moving Averages**

Cardwell pointed out that it is useful to add moving averages to the RSI chart. In particular, the moving average crossovers mark significant points in the RSI chart. The recommended settings for these moving averages are the 9-period simple moving average and the 45-period exponential moving average. Additionally, it has been suggested that

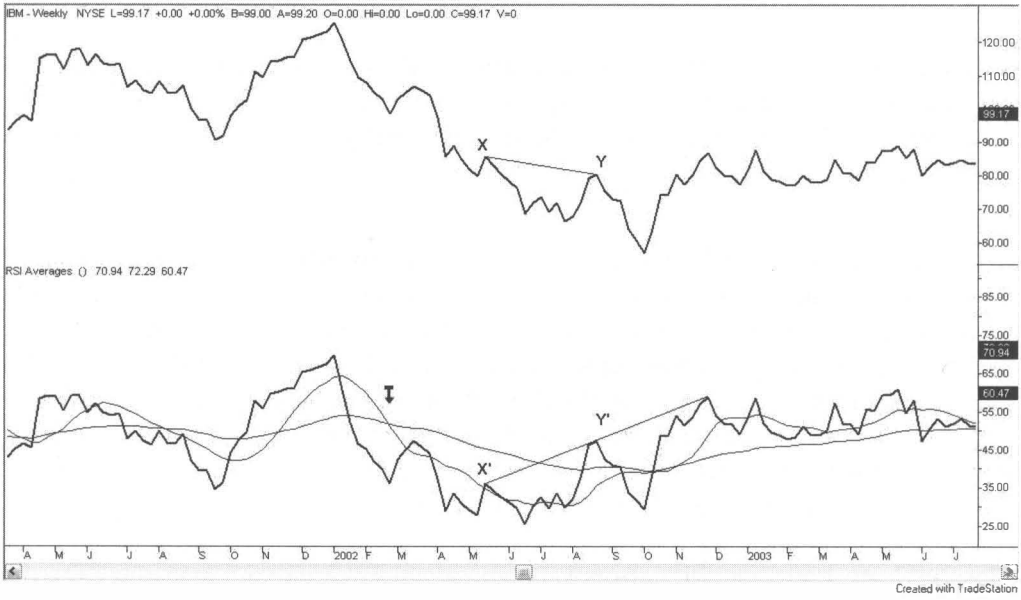
the same moving averages be applied to price, which may allow a correlation between both charts.

When a buy signal is witnessed, conservative traders are advised to wait until the crossing up of the moving averages in price confirms the RSI signal in that particular time frame. A sell signal in the RSI should be confirmed by the moving averages in price crossing down.

In my opinion, this degrades the relevance of this type of RSI signal. The crossing of the moving averages in price is a signal, and one could just as well state that whenever these moving averages cross, the existence of a buy or sell signal in the RSI confirms the price signal. In other words, an RSI sell signal could be disregarded as long as the 9-period simple moving average remains above the 45-period exponential moving average in price, as it is indicative of a bull market. An RSI buy signal could to be disregarded as long as the 9-period simple moving average remains below the 45-period exponential moving average, as it is indicative of a bear market.

Most analysts, traders and investors keep an eye on price moving averages because they allow the state of the market to be assessed quickly. The question is: which moving averages are significant in which time frame? Short-term traders may look for signals in the 5-period simple moving average and 20-period simple moving average in the hourly price charts, while conservative long-term investors may be interested in the 50-period simple moving average and 200-period simple moving average in the daily or even weekly price charts. Perhaps Cardwell's rationale for selecting these particular moving average settings was due to the fact that they are on the *conservative, long-term* side of the spectrum.

In some of the RSI charts in this book, the 9-period simple moving average and 45-period exponential moving average will be displayed. I find them useful to determine the preferred RSI channel anchor point in cases where several such reference points appear to be plausible.



**Figure 1.12** Weekly IBM

In this weekly IBM chart, moving averages have been added to the RSI. The arrow marks the crossing down of the short-term and long-term moving average, which coincides with the start of a major price decline. Points X' and Y' define a sell signal.

**Price Target Calculation**

The Cardwell method for Price Target Calculation is similar to the one used in the Fibonacci-logic. When price resumes its trend after a *shallow* retracement, we may expect the extent of the next price move to be 80% to 100% of the previous move. In an uptrend, if a price correction down is (logically) assumed to be shallow when it causes a buy signal in the RSI, we can say that the price move following the RSI buy signal will take prices to a new high. The price target can be calculated by adding the extent of the previous price advance leading up to the retracement down to the price level where the uptrend resumes.



**Figure 1.13** Weekly INTEL

Let's return to the weekly INTEL chart and take a closer look at the buy signal that was formed between Points A and B in the RSI. The price target for this buy signal is calculated as follows: Determine the change in price between Points A and B and add this value to the price high in between the signal reference points.

The difference in price between A and B is  $26.5 - 21 = 5.5$ .

The price target for this buy signal is  $35.2 + 5.5 = 40.7$



**Figure 1.14** Weekly General Motors

This weekly chart of GM was used earlier to illustrate the 20 to 60 RSI range in bear markets. There is a sell signal at Points X' and Y'. The price target for this sell signal is calculated by taking the difference in price between Points X' and Y' and subtracting this value from the low price between the signal reference points.

The price difference is  $43 - 36.8 = 6.2$ .

The price target is  $25.6 - 6.2 = 19.4$ .

**RSI Signal Strength**

Which RSI signals will prove to be valuable? What characterizes “strong” RSI signals (those which offer the best chance of reaching the price target)?

One opinion supported by Andrew Cardwell is that the fewer periods separating the RSI signal reference points, the stronger the signal, with a higher probability that price will reach the calculated target. Using this logic, a 3-period RSI signal with only one period between reference points should be considered the strongest possible signal. This rule holds up; it implies that the price retracement must have been extremely shallow. But then again, a 3-period signal in the daily RSI chart could correspond to a 13-period signal in the hourly RSI chart.

I remain skeptical about this statement regarding the strength of RSI signals as it implies that modest price targets barely exceeding the referenced high or low are more likely to be reached, which is not surprising. In my view it is more important to

check whether or not there were adverse RSI signals present in the smaller and larger time frames.

Cardwell's Target Price Calculation method starts from the assumption that the price move following a shallow retracement will correspond to 100% of the price move prior to the retracement. John Hayden links the probability of an ascertained price target to the percentage of retracement that caused the signal. This Fibonacci-related method results in a matrix of probabilities, ranging from "will easily exceed price target" in cases where the retracement is less than 23.7% to "probably will not exceed 80% of calculated price change" in cases where the retracement is over 76.3%.

Studying Cardwell is certainly valuable, as it is an alternative to the Wilder-style rules with some practical interpretation guidelines and useful signals. However, some questions remain. In particular, the interpretation of positive and negative Price/RSI divergence is left unanswered. Hayden believes that simple divergences are just temporary deviations from the main trend. In this respect, he confirms Cardwell's view that negative divergence is merely symptomatic of an uptrend and positive divergences are symptomatic of a downtrend.

According to Hayden, trend changes are preceded by multiple, long-term divergences (as opposed to simple divergences). Unfortunately, this description is far too vague to be of practical use when studying RSI charts and a definition of "multiple divergences" is not given. It is only logical that an RSI range-shift may be preceded or caused by repeated, persistent divergences that eventually succeed in pushing the RSI over the edge. Of course, we still have the RSI range-shift warning of potential trend changes. If the RSI shows signs that point to the half-pipe tilting the opposite way, the upcoming move may be a major one.

## **Recap**

Let us review:

There is no way to determine, in absolute terms, when a market is oversold or overbought. In most cases, the occasional divergences between the RSI and price do not lead to trend changes. Also, trends are time frame-specific.

Some interesting concepts were introduced by Andrew Cardwell. He discovered that some peculiar Price/RSI divergence signals can be used as buy and sell signals. Such a buy signal divergence occurs whenever a lower RSI reading corresponds to a higher low in price or when a shallow price retracement down in a bull market causes a lower low in the RSI. A sell signal occurs when a shallow price retracement up in a bear market causes a higher high in the RSI.

Price trend is reflected in the RSI in particular time frames in its range of travel. In bull markets, RSI values will range from (roughly) 40 to 80, while in bear markets, the RSI range is from (roughly) 20 to 60. A trend change in price will be reflected in the RSI by a range-shift.

Cardwell also proposed a method to calculate the projected price targets for these buy and sell signals. This method is taken from the Fibonacci analysis method, which says that after a shallow price retracement, the next price move with the trend will be (nearly) equal to the one leading up to the retracement. Cardwell's preferred RSI buy and sell signals are those with reference points that are very close, sometimes separated by a single price bar. These were called "strong" signals, as he apparently found that these often propelled prices to their projected targets.

Unfortunately, the reference time frame is not so specific that one can take these RSI signals from it. Wilder supposedly made reference to the *daily* RSI; Cardwell seems to indicate that his method is best suited for the *weekly* time frame.

Both interpretations lack the depth of Time Frame Correlation. At any one point in time, the price reality can be described by a large number of valid RSI pictures. There is not just one RSI chart that correctly describes a specific price action because each time frame produces a different RSI picture. There are many RSI pictures describing one reality. Each picture tells a different (but true) story, so why restrict the RSI analysis to just one time frame?

In the methods we have discussed, some questions remain unanswered, but will be addressed in the forthcoming chapters. How does one interpret RSI signals in the smaller time frames? When do RSI signals become invalid? When exactly is a signal considered to have failed? What if we find contradicting RSI signals in a particular time frame? Also, what is the nature of Price/RSI divergences and what is their significance? What is the significance of the signals' price targets?

# CHAPTER TWO

THE SLANTED RSI UNIVERSE

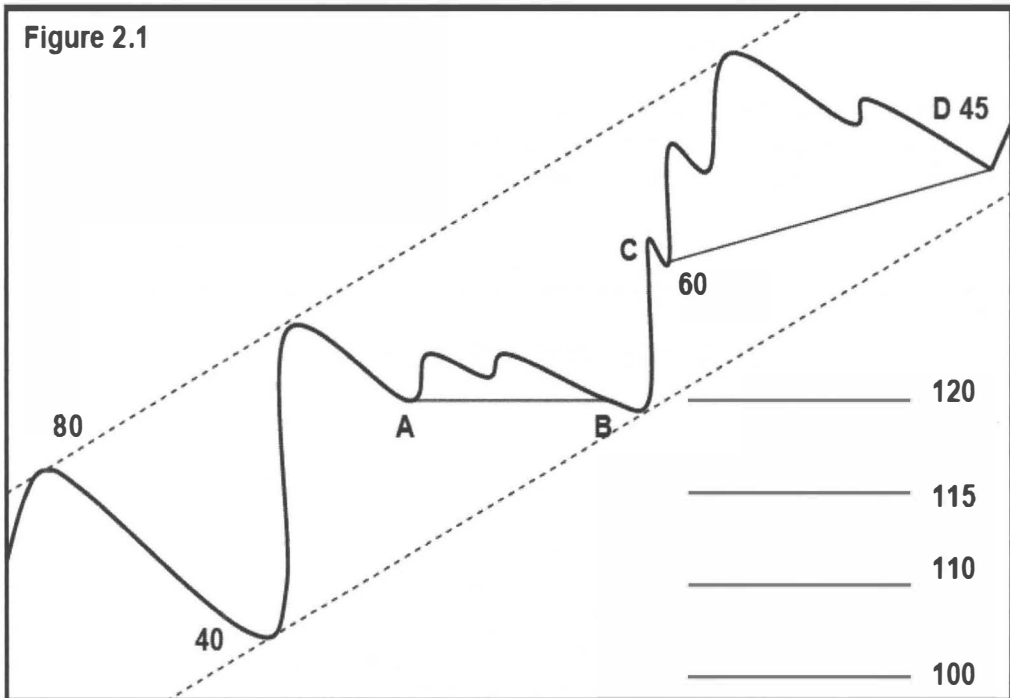


## PART I

### THE RSI DISTORTION

In this section, I will demonstrate that the best way to study RSI charts is to use slanted reference lines rather than horizontal reference lines as we would in price charts. This means that when prices rally in a staircase-like advance, the resulting RSI chart will be in the formation of a series of \-slanted segments or channels. In a price decline, we will find /-slanted channels in the RSI. Understanding this RSI logic is essential for further analysis.

When analyzing RSI charts, one of the first problems encountered by the user is that the RSI chart looks so much different than the price chart. Look at a bull market, for instance. Prices on the chart rise steadily, while the RSI values on the chart meander up and down in a nearly *horizontal* range, roughly between 40 and 80 in RSI bull territory.



Let's try to make the RSI chart resemble the bull market price action more closely. If the RSI charts are printed on paper, then cut and pasted in a strip, this strip could be overlaid in such a way that it mimics the price movement in a *climbing* range. This results in something that looks like Figure 2.1, which is an RSI staircase going up in steps similar to the underlying price moves while the RSI values are still confined to the range between 40 and 80.

In a bear market, the RSI chart cascades down and oscillates roughly between the values of 20 and 60 in the RSI bear range. In Figure 2.1, the RSI strip has been tilted to

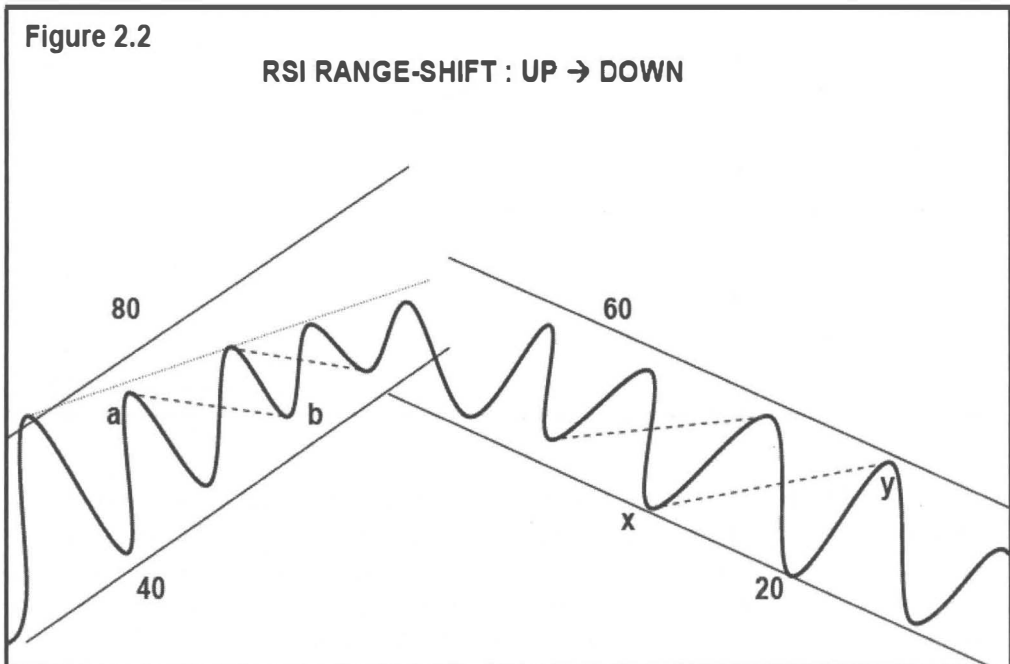
align with the price uptrend. The corresponding rising prices are symbolized by the horizontal lines in the right corner of the chart and are labeled 100 to 120.

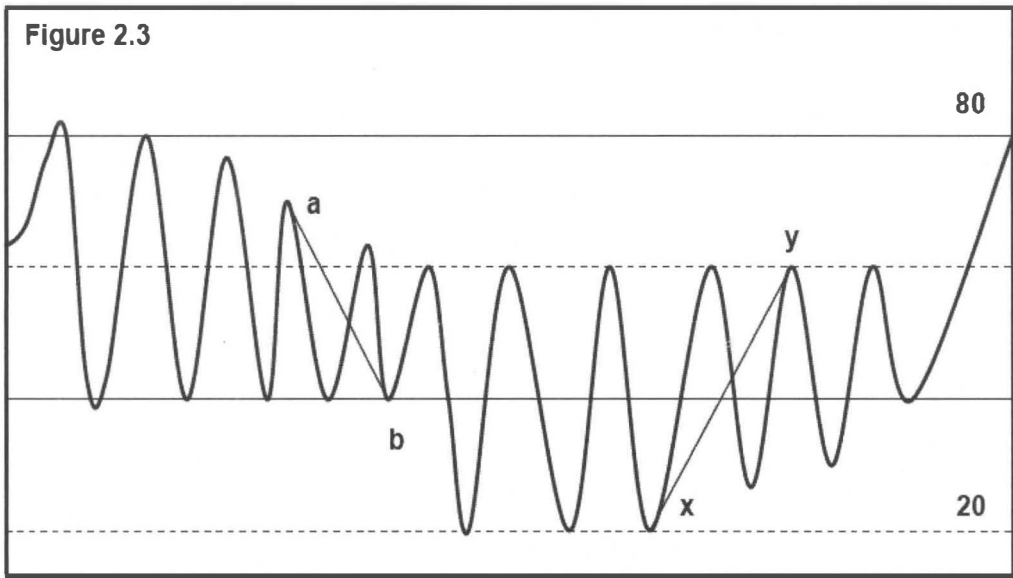
Points of equal price, (e.g. Price 120), in the RSI define a declining Line A-B, where Point B is at a lower RSI level than Point A.

At Points C and D, the situation is more extreme: Point D is at an RSI level of 45 that corresponds to a price level (that is not equal to, but higher than) Point C, which is at an RSI level of 60. This immediately brings us to an important point. In bull markets, this specific type of Price/RSI correlation appears where a higher price low is reflected in the RSI by a *lower* low. This corresponds to the RSI buy signal introduced by Andrew Cardwell. It is formed when the RSI rebounds off of a lower low, while the corresponding price reverses up after a mild correction down.

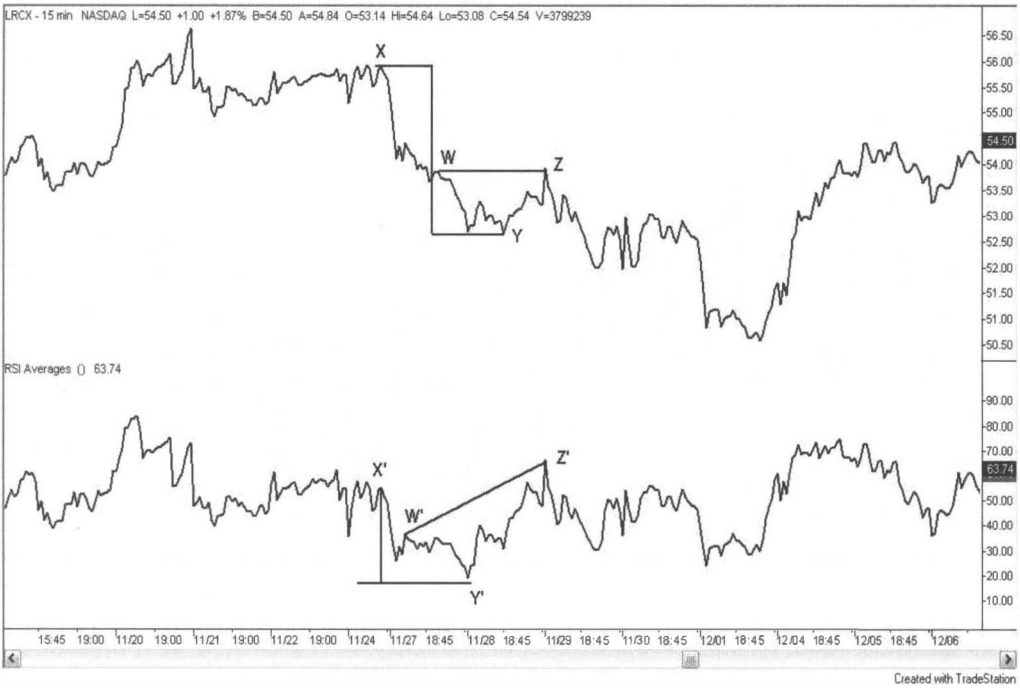
When this appears in the RSI chart, it indicates that the market is a bull market in that time frame. In a bear market, the horizontal line in the price chart connecting points of equal price corresponds to a rising line in the RSI chart. Let me repeat that I see no reason to call these “reversal” signals, as their occurrence in most instances only confirms the strength of the trend in force.

A down-up sequence in price trend results in a down-up sequence of the RSI strips, as depicted in Figure 2.2. In the bullish part of this chart, Line a-b connects points of equal price; in the bearish part, Line x-y connects points of equal price.





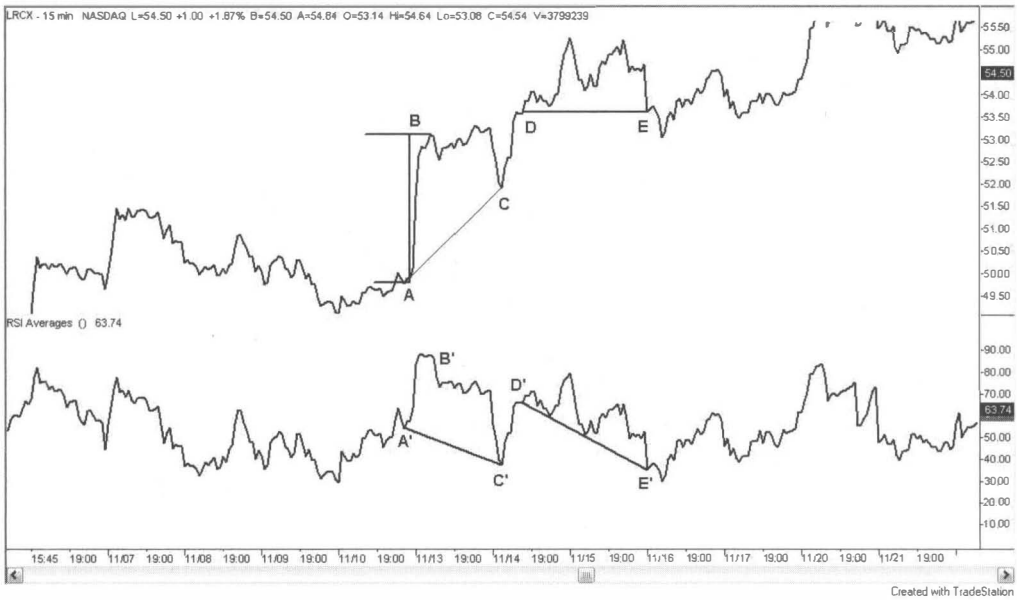
If an up-down trend change is represented in one *horizontal* RSI strip, as if presented on a PC screen, the chart looks like Figure 2.3. This is what an RSI range-shift looks like, possibly preceded by what could be a negative divergence, pushing the RSI below the 40-level.



**Figure 2.4** LRCX (15-minute)

This chart was used earlier to illustrate the “peculiar divergences” that exist between price and the RSI. In this example, the RSI hits resistance at Point Y’. If this drop in the RSI is compared to the drop in price from Point X to Y, we can see the effect of their logarithmic correlation.

The modest price rebound from Point Y to Z causes a spectacular jump in the RSI from Point Y’ to Z’. This RSI distortion of price reality leads to the following conclusion: In a bear market, points of equal price (Line W - Z) will define a *rising* reference line (Line W’ - Z’) in the RSI. So, if we study price changes in relation to their *horizontal* references or price levels, we must then study the corresponding RSI changes in reference to their *slanted* reference lines.



**Figure 2.5** LRCX (15-minute)

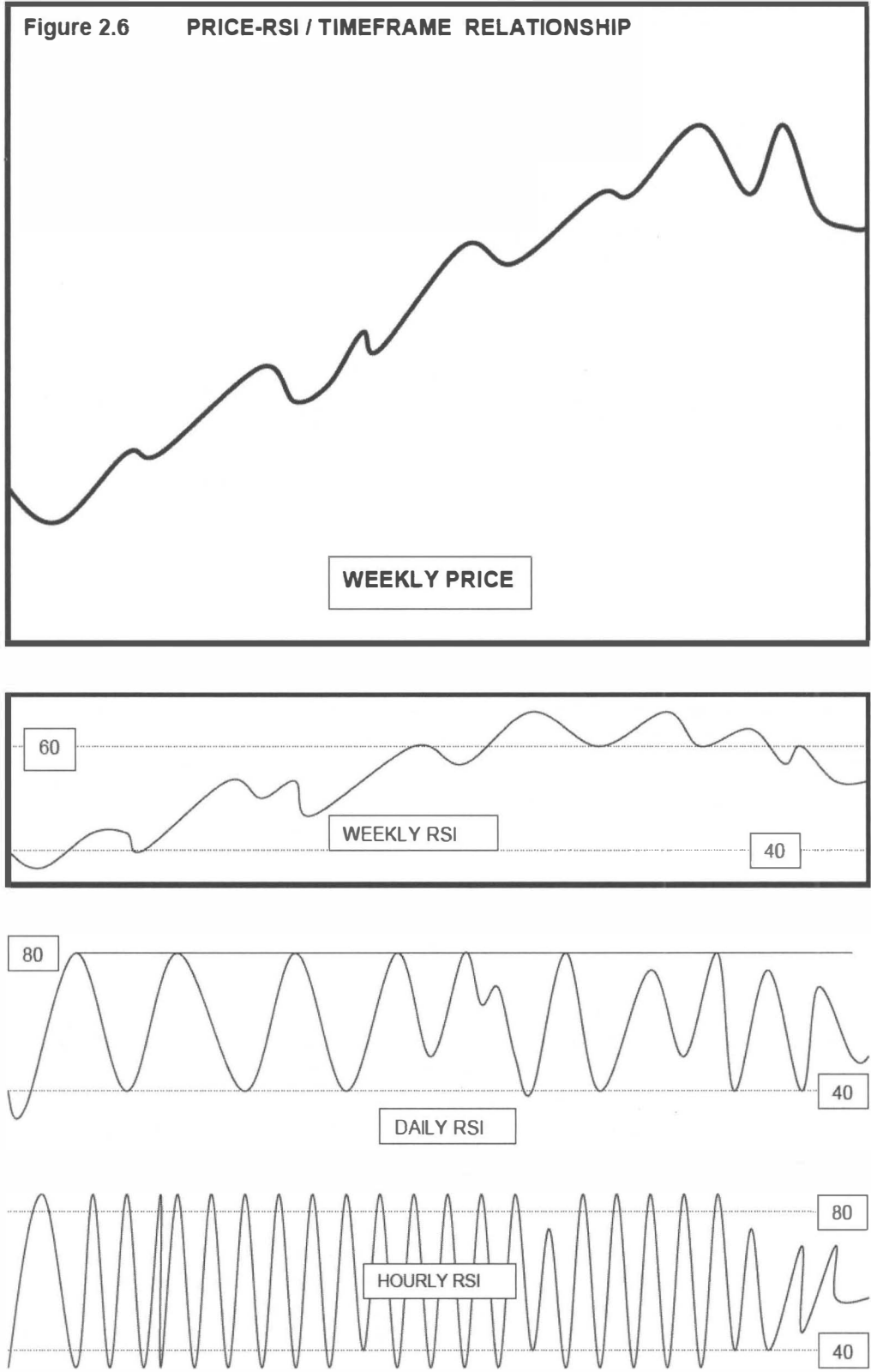
In bull markets, due to RSI distortion, the line that should be used as a reference to study changes in the RSI versus changes in price (Line D-E), is a *declining* line (Line D'-E').

## PART II

### RSI ZOOM-IN

Another particularity of the Relative Strength Index is that its picture changes significantly when switching from one time frame to another. Price levels remain unchanged whether they are examined in a daily time frame or in a 15-minute chart. This is not the case in the RSI. The outcome of the RSI calculation in the hourly time frame, typically covering 14 hours of data is totally different from the RSI picture in the daily chart covering data of the last 14 trading days.

This time frame specific behavior makes the RSI study interesting because it allows us to analyze and correlate *various* RSI pictures describing *one* price action within a given time period. This is like looking at a particular price behavior from various angles, which can be correlated because they describe different aspects of the same reality.



Let's take a look at Figure 2.6. The chart shows a long-term bull market in the weekly chart. The course of the weekly RSI (more or less) resembles the course of the price action in that it is heading up for most of the time, meandering within bull territory.

Looking at the same price action up for the same period of time, but examining the corresponding RSI chart in the daily time frame, we notice that the general aspect of the chart does not directly reflect the uptrend. The RSI values oscillate up and down, roughly between the 40- and 80-level. This fact indirectly tells us that the trend must be up.

Zooming in even further on the hourly chart, we see that there are more frequent and wider oscillations in the RSI that often alternate between bull and bear territories. The reason for this behavior is that relatively shallow price retracements accompanying a bull market of this magnitude are sufficient to push the hourly RSI values into its bear range for a period of time. Strong moves upward may lift the RSI above its normal values, occasionally reaching a value of 85 or more. This is often the case after a shallow price correction down, when prices rally strongly. In the RSI calculation period of 14 hours, momentum turning from mildly negative to strongly positive results in the largest momentum jumps, relatively speaking.

In the hourly RSI chart, the uptrend will be indirectly visible because the RSI spends more time in the range between 40 and 90 than it does in the 60- to 10-zone. Additionally, within the 40- to 90-range, a series of buy signals provide further indirect evidence of the uptrend. There might be the occasional sell signal, caused by price declines that lead to the formation of buy signals in the daily time frame. These price declines that are shallow in the daily picture, may turn out to be deep enough to cause sell signals in the hourly time frame. From this series of comparative charts, the need to correlate different RSI time frames in order to assess the market conditions and anticipate high probability scenarios becomes clear.

My preferred set of time frames for RSI analysis is the weekly-daily-hourly combination. For shorter-term trades, I prefer to use the daily-hourly-15-minute combination.

### **PART III**

#### **RSI SEGMENTS AND CHANNELS**

In a bull market, rising prices find their expression in the RSI chart in the up-down cycles in bull territory. This is characterized by the peculiarity of lower lows in the RSI value corresponding to higher lows in price. In a bear market, the RSI up-down cycles in bear territory are characterized by higher highs in the RSI corresponding to lower highs in price. These features were used by Andrew Cardwell to define his buy and sell signals.

Remember that these signals can be used to determine trend direction and in some cases point to possible trend reversals. We also find the need to use slanted reference lines in the RSI chart when studying price change. This leads us to study the RSI price relationship by examining RSI behavior in relation to these slanted reference lines. It makes sense to anchor these reference lines on RSI extremities with some significance. For example, we could use the buy or sell signal reference points. Let's see where this idea leads us. Figure 2.7 shows the 15-minute LRCX chart that was studied earlier when discussing the peculiar Price/RSI divergence that produces the buy and sell signals.



**Figure 2.7** LRCX (15-minute)

In this chart, we find that there is a buy signal at Points A'- C'. If Line A'- C' is used as a reference, other significant parallel lines can be defined as well.

For instance, Line B'-F'-G' runs parallel to Line A'- C', starting from the RSI top at Point B'. There is another buy signal at Points F'-G'. In fact, a buy signal is formed when the RSI bounces off the top reference line of the previous RSI slice or segment. This is what happened at Points A'- C' as well. We end up with three RSI segments in this chart.

There is one segment below the Line A'- C'; there is another RSI segment defined by the lines A'- C' at the bottom and B'-G' at the top; and finally there is the one building above the Line F'- G'. These RSI segments correspond to the different steps of the price staircase. The arrows indicate where the RSI jumps from one segment into the next higher one. Each time this happens, prices rally with renewed vigor. Let's call these RSI segments "channels." Later, we will see that these channels are being formed within a larger Channel<sup>2</sup>.

It should be noted that large Channels<sup>2</sup> may correspond to “normal” channels in the larger time frames.

Descending channels are typical for bull markets; ascending channels are relevant in bear markets. In practice, we will look for significant descending or ascending channels whenever they can be anchored to RSI signal reference points and clearly correspond to the consecutive phases in the underlying price behavior. Important lessons about probable future price moves can be learned by watching the RSI move within or break out of established channels.

Traders who know the Elliott Wave theory will be familiar with the concept of the “Russian Dolls” aspect of this analysis method. As you zoom in on an impulsive wave, studying parts of it in smaller time frames, you will find ever smaller identical impulsive waves as subdivisions within the original, larger impulsive wave.

The same goes for the various RSI channels. What is labeled a “Channel<sup>2</sup>” in one time frame could very well correspond to a channel in a larger time frame. In this respect, these channels provide a link between various time frames and can be used as a tool for the correlation of the RSI pictures. Most relevant will be the study of RSI value moving within the channels, of the break-outs from these channels, and of the effect this has on its Channel<sup>2</sup> or on its channels in the larger time frame.

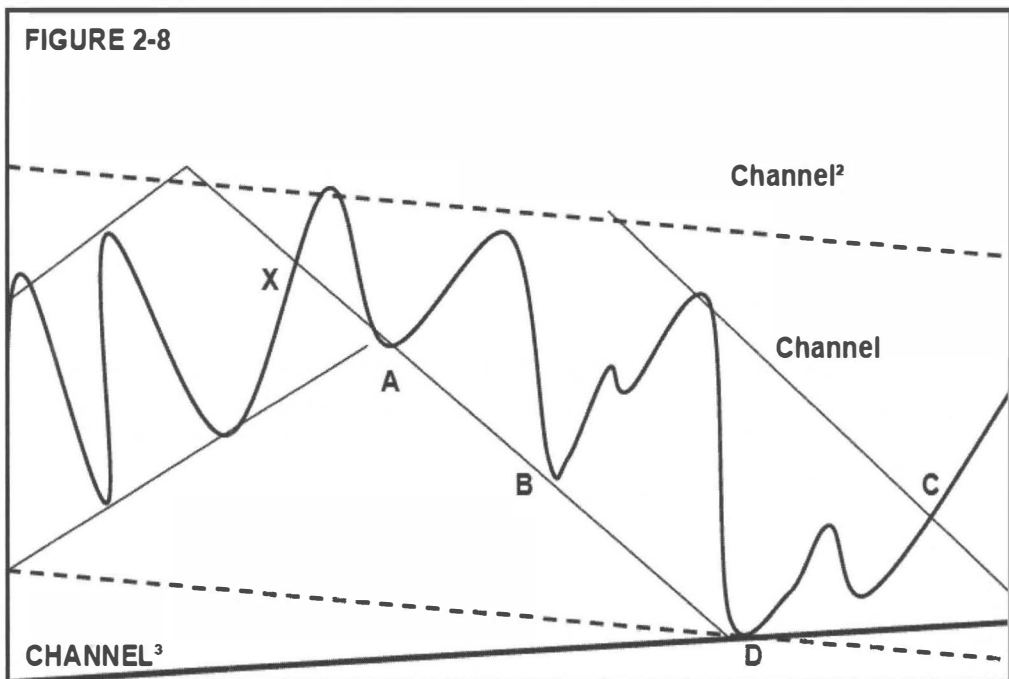


Figure 2.8 illustrates how channels of various sizes appear in the RSI chart of an uptrend. The initial primary RSI channel leads up to Point X, where the RSI jumps into the next RSI segment, or channel. Suppose a buy signal is formed at Points A- B, so Line A - B - D can be used as the lower boundary of a descending primary channel. As the RSI reverses up at Point D, at around the 40-level, we could imagine that there is

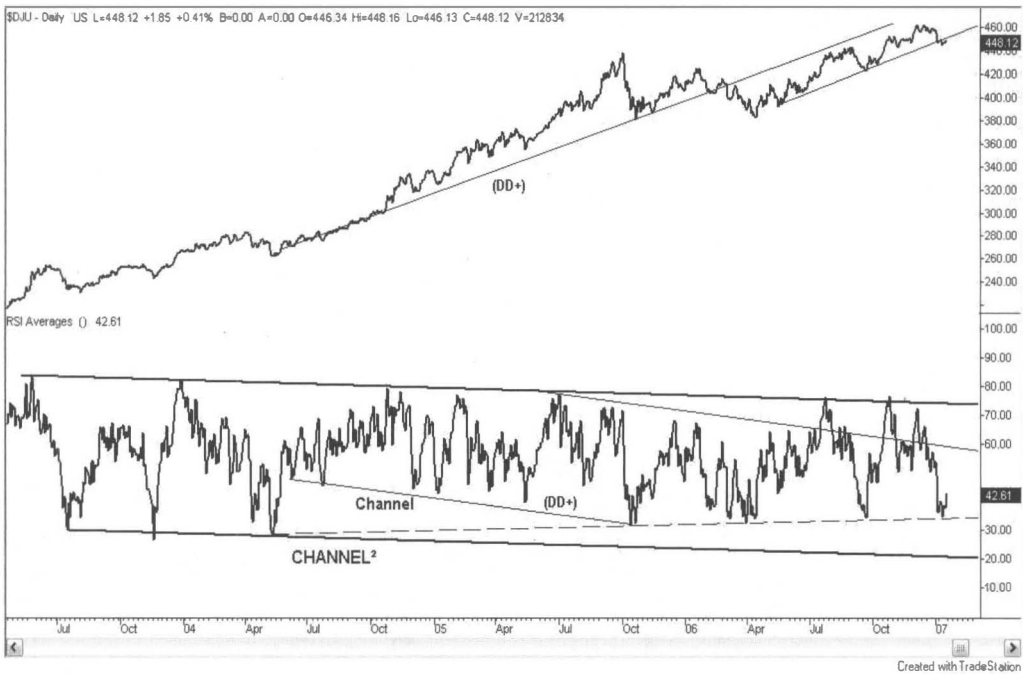
another buy signal that defines the lower boundary of Channel<sup>2</sup>. At Point C, the RSI jumps into the next RSI channel.

In short, we have primary up-down RSI channels within a descending Channel<sup>2</sup>, anchored on (DD+) reference points. All of this could be situated within an even larger ascending Channel<sup>3</sup>. All channels, no matter their size, have RSI signal reference points on their lower or upper boundaries. To find these larger signals, we switch to a larger time frame, where the Channel<sup>3</sup> and its reference points will be clearly visible.



**Figure 2.9** Weekly Dow Utility Index

This chart illustrates the channels-within-channels concept. The descending RSI channel is the down leg within the larger descending Channel<sup>2</sup>. This Channel<sup>2</sup> is a down-leg within the ascending Channel<sup>3</sup>. Note that the RSI low in April of 2006 is near the 40-level in bull territory.



**Figure 2.10** Daily Dow Utility Index

This is a close-up picture of the weekly chart where a negative divergence defines the upper boundary of the descending Channel<sup>2</sup>. Note that the low price in April 2006 does not correspond to a lower low in the RSI as it did in the weekly chart. The dashed line in the RSI defines the lower boundary of a potential new ascending channel. In the weekly chart, this would mean that the recent RSI rise from the bottom of its Channel<sup>3</sup> is the start of an up-leg within Channel<sup>3</sup>.

## **PART IV**

### **RSI CHANNEL LOGIC**

We have analyzed how the RSI formula distorts the underlying price picture and transforms it in a segmented RSI strip. These RSI segments, or channels, have properties depending on whether they are a product of bullish or bearish conditions. Consequently it makes sense to analyze the RSI by checking which channels are meaningful.

Up-trending markets are characterized by descending channels where buy signals will form, indicating that the rally is continuing. In fact, we will look for RSI channels that are anchored on the buy signal reference points. Downtrends are characterized by ascending channels, where sell signals will form. The significant channels are those

anchored on the sell signal reference points in the RSI. When an RSI buy signal appears in a downtrend or an RSI sell signal appears in an uptrend, these may be early indications of a trend reversal in that time frame.



**Figure 2.11** Daily BG

Let's analyze the BG daily chart. Our first task is to find some relevant segments in the RSI. Lines A, B and C connect some tops and troughs in the RSI chart. Are these lines significant? Line A connects higher highs in the RSI, but these correspond to higher highs in price, so there are no sell signals defined on Line A. Line B connects some RSI lows at the left of the chart, then, to the right of the center of the chart, Line B connects some RSI tops, but again, the RSI tops correspond to higher highs in price, so there are no sell signals here either.

No wonder there are no sell signals here. The price trend is clearly up in the right half of the chart! Line C seems to have some significance as it connects some RSI extremes, but no buy signals are found on Line C.

But wait a minute. If prices are in an uptrend, we should be looking for descending channels (where there should be some buy signals).



**Figure 2.12**

This is much better! The descending channels make much more sense. They had been staring us in the face all the time. The segments in the RSI correspond to the consecutive phases in the price rally. The switch occurs when the RSI breaks out from one segment and jumps into the next. Where are the buy signals? Actually, several were detected in this chart.

Line A connects lower lows in the RSI that correspond to marginally higher lows in price, so line A defines a modest buy signal. Lines B and C define the bottom of the second RSI segment. Here, we also have a buy signal. From the Line B - C, the RSI rises and pops into the third segment.

Lines D and E define buy signals. Please note that the RSI in this channel does not rise above the 60- to 65-level. As we have learned, this indicates market weakness.

At Point F, the RSI breaks out once more in a FAST buy signal with the RSI well within bull territory. The price advance becomes steeper in this section and consecutive shallow retracements in price cause buy signals in the RSI.

Let's move from this discussion and define the 2<sup>nd</sup> degree channel in this chart as shown in Figure 2.13. When the extremities of the RSI channels are connected in the previous chart, a Channel<sup>2</sup>, which can be used for further reference, is obtained.



### 2.13 Daily BG

The upper boundary of Channel<sup>2</sup> reaches the 95-level at the extreme right side of the chart. Does this mean that the RSI could keep going up to that level? It is certainly possible to see the RSI reach the 90-level, as it did in January 2004, but that is not required for prices to continue their advance.

In November and December of 2004, the RSI struggles at the 80-level. Each time the RSI reverses up after a setback, prices reach new highs. So, we could see the development of a negative divergence with prices flat or still rising moderately while the RSI drops to more reasonable levels, possibly to the lower boundary of its Channel<sup>2</sup>, where another buy signal could form.

There is a similar scenario between January and May of 2004, from Line B - C. After the RSI hits the 90-level, a negative divergence pushes it down toward the lower boundary of Channel<sup>2</sup>, while prices keep rising. The price decline that follows in April of 2004, as the RSI is finally pushed below 60, results in a shallow retracement. The reversal up of the RSI in May 2004 triggers the buy signal. Also note the steeply out-of-proportion drop in the RSI in February of 2004, which leads to the formation of a subsequent buy signal.

Let's discuss how the end of the rally will become visible in the RSI chart. Imagine the RSI meandering in one of its consecutive bullish segments, like the ones we have just

discussed. However, this time the RSI does not break out into the next up segment, but rather remains within its descending channel.

As the RSI value drops lower within its descending channel, it will reach bearish territory at some point in time; no more buy signals can be detected on the lower boundary of the channel. If the RSI remains unable to break out, sell signals will appear within the descending RSI channel. In such a case, this initial sell signal could be called a “negative reversal,” as it suggests the end of a series of buy signals and may lead to a trend change.

In this trend-reversal process, it takes quite some time before the first sell signal is detected in the daily RSI chart. After all, a sell signal forms after a shallow price retracement up within a price decline. In the daily time frame, such a price decline can be quite substantial, meaning that some serious losses could be suffered before the sell signal materializes.

In order to limit the time and the price swings required to produce a sell signal, switch the analysis to the hourly time frame. There will be other signs in the RSI warning us of potential trouble. In the case we have just discussed, the first warning is the RSI-drop below its Channel<sup>2</sup>.

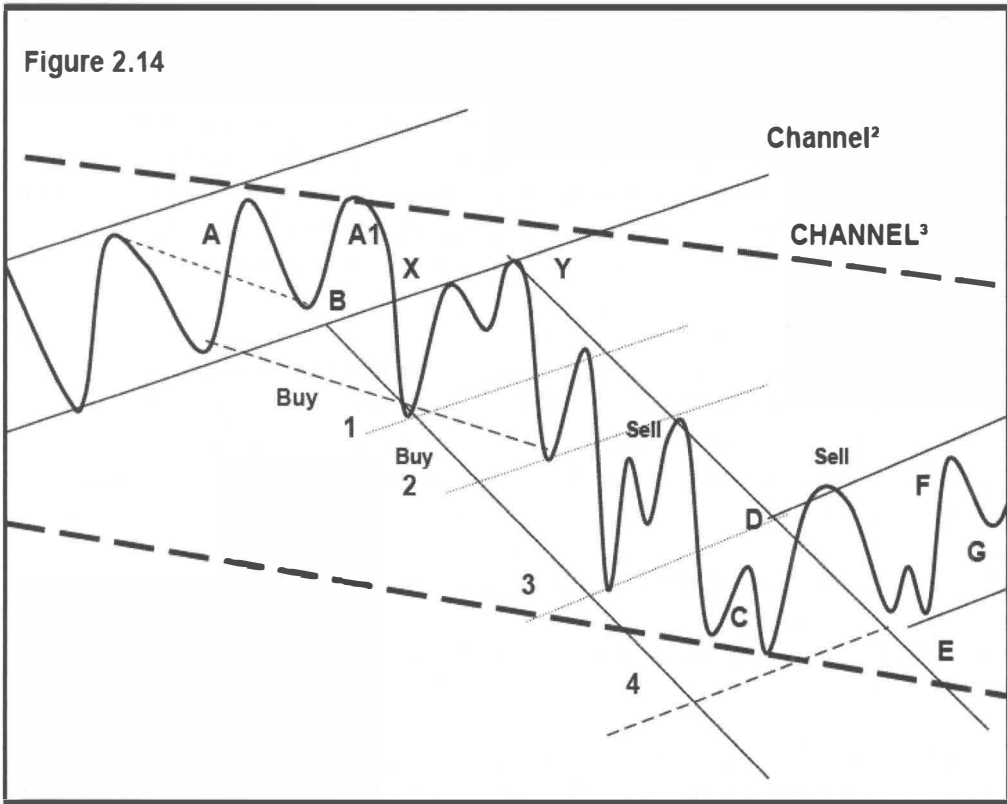
Figure 2.14 shows a potential scenario for the BG Chart previously discussed. We left the BG Chart with the RSI moving within its ascending Channel<sup>2</sup>, which corresponds to the channel at the top left of the hypothetical RSI chart.

At Points A - B, there is one more buy signal within the Channel<sup>2</sup>. At Point A1, the RSI fails to break out and jump into the next-up RSI segment. Prices reach a new high because we are around the 80-level in the RSI chart. At that level, each reversal up in the RSI takes price to a new high. As a result, there is negative divergence at Point A1.

At Point X, the RSI value drops below Channel<sup>2</sup>, but is still well within bullish territory. As the RSI reverses up from Line 1, it produces a buy signal and the RSI rebound to Point Y takes price to a new high again. In other words, the negative divergence persists. After this buy signal, if the RSI manages to stay within its new ascending channel or above Line 1, the RSI will be rising to new highs in bull territory and it will put an end to the negative divergence. However, the RSI does not rebound off Line 1; it breaks below it.

No problem, the RSI is still in bullish territory (although getting closer to the bearish zone) and the reversal up from Line 2 produces yet another buy signal. This time the RSI rise, following this buy signal, results in a lower high in price. The rally is weakening.

By now the RSI is caught in a descending channel. This is typical for an uptrend as long as buy signals form at the lower boundary. So far, this has been the case. At this point, if the RSI manages to stay above Line 2, a new ascending channel will develop, parallel to the initial channel, but at a lower RSI level.



The RSI fails to stay above Line 2 and fails to break the negative divergence. As the RSI breaks below Line 2, it drops to Line 3. However, the reversal up does not produce a buy signal. When dropping to Line 3, the RSI enters bearish territory, breaking well below the 40-level. This means that small moves down in the RSI correspond to larger price drops.

The rise in the RSI, following the rebound off of Line 3, ends with a reversal down after reaching Line 2, this time forming a sell signal in the process (reversal signal), while failing to break out of the descending channel once again. The RSI breaks below Line 3 at a value well below 40 and the price decline accelerates. Each time the RSI turns lower, prices get hurt. In a final decline, the RSI reaches the 20-level just shy of Line 4, as prices continue their drop. At last the RSI hits its mathematical resistance and starts to curl up past Point C.

This does not mean that the price decline is over. It is the start of a positive divergence into Point E. In this zone of the RSI chart, each rise in the RSI means little change in price, while each reversal down in the RSI causes prices to move lower quickly. Past Point E, the positive divergence persists as the RSI stays above Line 4 and the RSI finally escapes from its descending channel.

Again, this does not mean that price resumes its uptrend, as we have yet to see any buy signals. Past Point E, the RSI pops up and reverses down from Point F, forming a sell signal. Following this sell signal, if the RSI should drop below Line 4, prices would get hit hard again.

However, the RSI stays within its new ascending channel defined by sell signals at its upper boundary. This will eventually lead the RSI to values above 40 again while the price decline bottoms out.

If the RSI manages to stay within its newly formed ascending channel past Point G, a first buy signal (reversal signal) will form within this channel as it advances into bullish territory. This means that we have returned to the uptrend and any up-move in the RSI will correspond to a real price advance, while declines in the RSI will no longer depress price.

The whole of this cycle could be placed in an imaginary descending Channel<sup>3</sup>. This channel is probably visible in the larger time frame (e.g. weekly chart) and we could ask ourselves if the RSI rebound from the low around Point C is really a buy signal. (There is no way we can tell from this chart, as it does not display corresponding prices).

Let's assume that there is no buy signal at the lower boundary of Channel<sup>3</sup>. What does that mean? It means that we may see the formation of a large sell signal within Channel<sup>3</sup>, unless the RSI, or the "new ascending RSI Channel<sup>2</sup>," succeeds in breaking out from its Channel<sup>3</sup>.

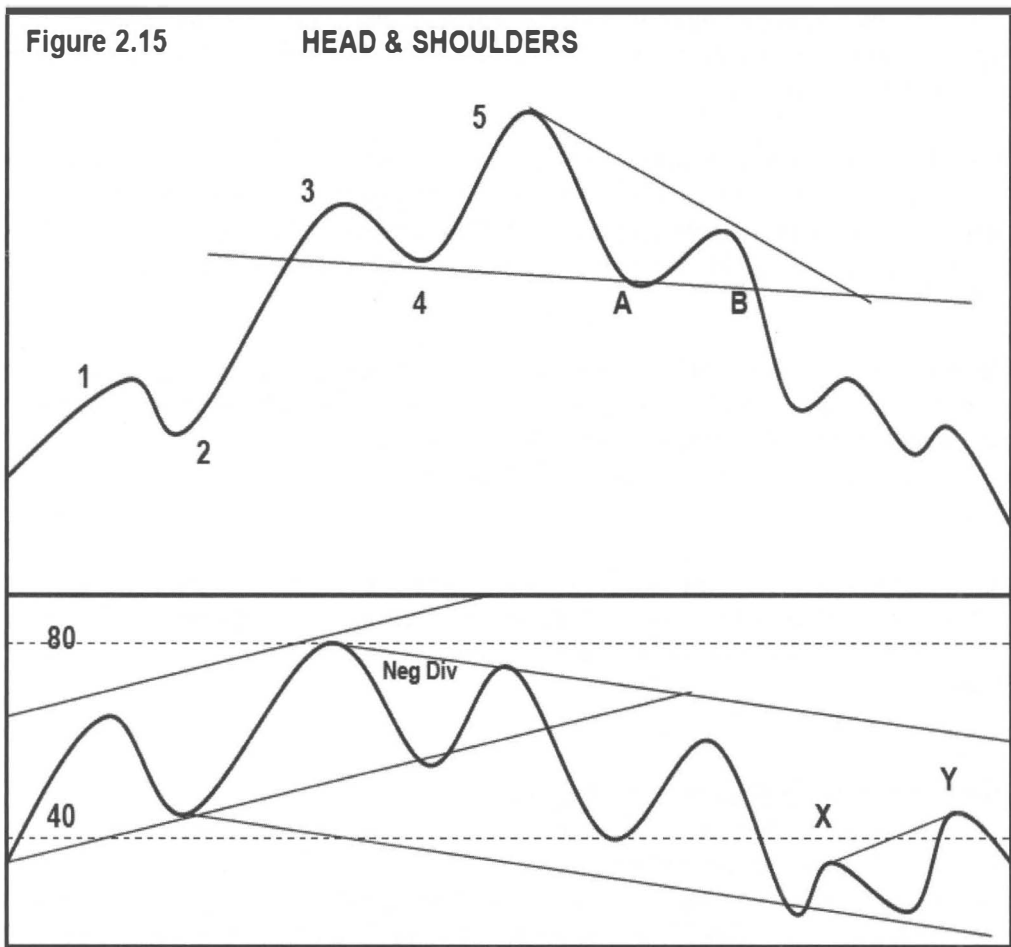
### **Disproportional Displacement: (DD+) and (DD-)**

We have learned to look for significant channels in the RSI chart. RSI channels are "significant" when they define buy or sell signals. In up-trending markets, we should be able to find descending channels anchored on buy signal reference points. In down-trending markets, we should be able to detect ascending channels anchored on sell signal reference points. These buy and sell signals are (basically) those defined by Andrew Cardwell. As we advance from this basis, I will start using new symbols for the buy and sell signals.

As the underlying phenomena for these signals are out-of-proportion moves in the RSI versus price, I will label these signals Disproportional Displacements or (DD). The bullish type (DD) signal will be labeled (DD+), while the bearish type will be labeled (DD-). This should also clarify any confusion about the meaning of "sell signal," as this type of signal should not always trigger the "sale" of anything. A "buy signal" should not automatically lead to the conclusion that it is advisable to enter a long position. It might also mean that is a good idea to reduce a short position.

The use of the acronyms (DD+) and (DD-) resolves this type of confusion, especially as several conflicting (DD) signals of *either type* may be encountered in the RSI, especially when studying various time frames. The final result of the RSI analysis: These various (DD) signals will determine whether it is advisable to enter or exit either a long or short position or to stay flat.

We are preparing to re-examine these signals in relation to the channels they define. This will result in some new insights regarding the RSI and we will be able to discover some important things about the validity of these signals.



**Figure 2.15** Head & Shoulders Formation

This is another example of what RSI channels look like and how they correspond to a price action. The price chart displays a Head & Shoulders (H&S) formation. An H&S is a typical (potential) reversal pattern in price. After a series of higher highs, prices do not manage to rise above the last top and consequently form a first lower high (right shoulder).

When a lower high is formed, it could be the start of a decline or trend change. However, the decline just prior to the right shoulder must have been shallow, so normally we should see a resumption of the rally. The make-or-break limit is the neckline. When prices break below the neckline, a continuation of the price decline is to be expected. In the context of Elliott Wave, we could imagine that the head is the top of final Wave 5, followed by a textbook correction down to the area of the previous Wave 4. The head and the right shoulder could be labeled “cup and handle,” or “negative wedge.”

Now, let’s consider how a Head & Shoulders formation is expressed in the RSI chart. The upper part of Figure 2.15 shows the H&S formation in price. The rally could be labeled a 5-wave advance, with the head being final Wave 5 up. The lower part of the chart is the corresponding RSI graph.

At the beginning of the chart, the RSI is in bullish territory, rising within its ascending channel, while prices keep moving up. I am sure that we could find some (DD+) signals in this channel. At Point 3, the RSI hits 80 and a (DD+) signal is formed at Point 4. The RSI rise after this (DD+) fails to take the RSI into the next segment and a lower high occurs in the RSI, while prices still reach a higher high, [the price target for the (DD+)].

Now we see the start of a negative divergence. Next, we see the RSI drop below its ascending channel. This provides us with a warning that something is happening, as we may now see the start of a descending channel, defined at the top by the negative divergence.

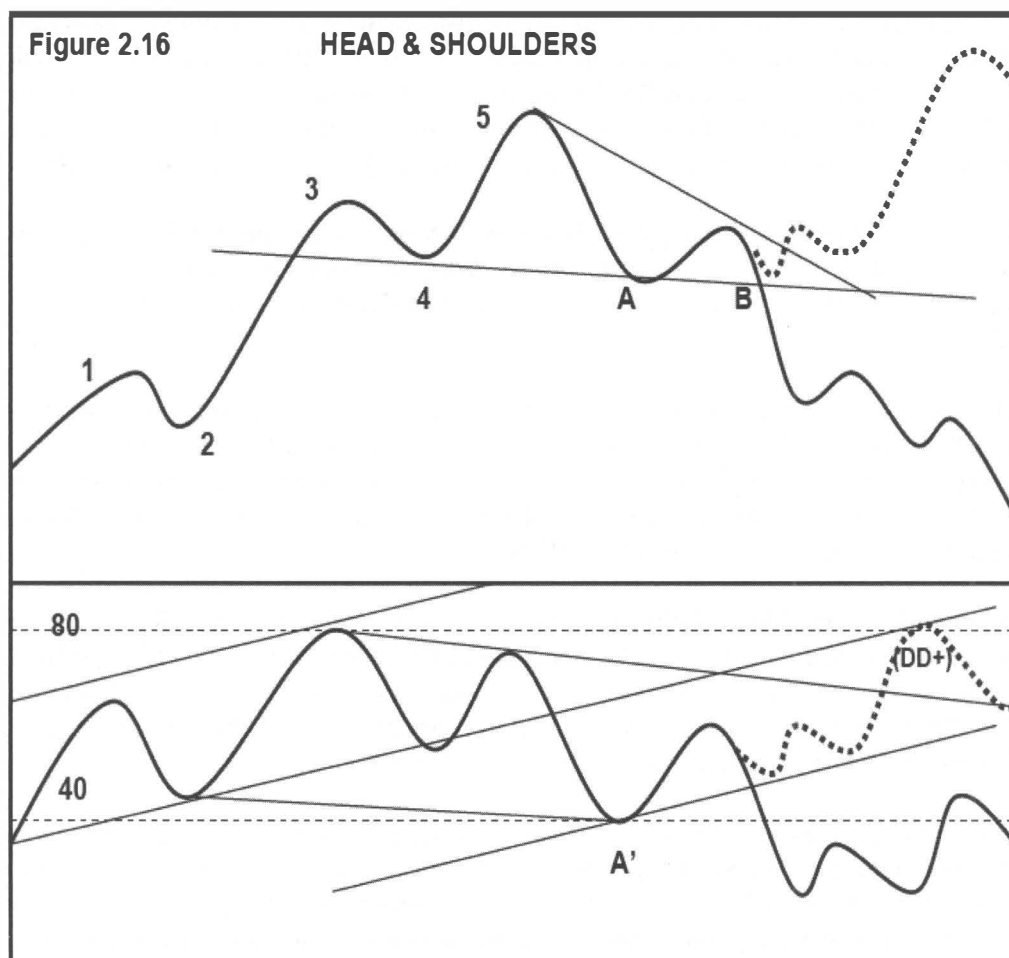
As long as (DD+) forms at the bottom of this descending channel, the trend remains up. A (DD+) forms at Point A in relation to Point 2. However, we know that the RSI will end up in bear territory if it stays within this descending channel. From this (DD+), the RSI rises, but fails to break out from its descending channel and prices reach a lower high forming the right shoulder of the H&S.

As the RSI reverses down, failing to escape from its descending channel, it drops below 40 and enters bearish territory. This corresponds to prices dropping below the H&S neckline (or, cup-line or wedge) and the price decline accelerates. As the RSI bounces off of the bottom of its descending channel, just prior to Point X, it develops a modest (DD+) in relation to Point 2, but it is well within bearish territory.

The RSI climbs to Point X, while price barely moves because the RSI is still well below 40. When the RSI reverses down from Point X, prices move lower quickly. As the RSI hits mathematical resistance, it starts to wrinkle up, forming a modest positive divergence into Point Y. The corresponding price rise is not convincing and results in a (DD-) signal relative to Point X. So there you have it: the RSI remained trapped in its descending channel and ended up in bearish territory.

As the (DD-) takes effect, it signals that the downtrend is in force. At this stage, if the RSI manages to climb to the top of its descending channel, it will still only reach a value of 60 at that point and another (DD-) may be developing. In other words, Line X -Y in the RSI could be the start of an ascending channel dominated by consecutive (DD-) signals, until the RSI reaches bullish territory and the first (DD+) is detected.

What would the alternate scenario (e.g. a negated H&S formation) look like in the RSI? I refer to Figure 2.16.



Up to Point B, we have a shallow retracement, which should be followed by a resumption of the uptrend and send prices to new highs. (This scenario is pictured by the dotted lines in the price and RSI charts).

Let's return to Point A (A' in the RSI). There is a (DD+) here in reference to Point 2. However, following this signal beyond Point A', the RSI stays within its ascending channel, which is parallel to (but lower than) the original. As the RSI remains above 40, any rise in RSI value will push prices higher. As the RSI value breaks to the upside from its descending channel, thus ending the negative divergence, it will head higher, (probably to the 80-level again), and push prices to a higher high.

Until the RSI break-out, it was not clear which channel the RSI would follow as it was moving within a triangle. Such triangles often center on the 50-line in the RSI and signal the indecision in the market. The RSI continues up within its ascending channel, and the new (DD+)s will soon appear, while prices rally to new highs. In fact, we see a recreation of what happened earlier in the first ascending channel. In this alternate scenario, the RSI dropped disproportionately past Point 5, only to resume its ascending channel from a lower level. **This is the definition of a (DD+) buy signal.**

Conventional wisdom tells us that H&S formations, wedges, and cups & handle formations have the greatest effect when they fail.

## PART V

### THE NATURE OF PRICE/RSI DIVERGENCES

Now that the concept of (DD) and their signals are understood, our discussion can revert to Price/RSI divergence.

Let's examine the Russell 2000 Index charts. The first RUT chart (Figure 2.17) shows the daily time frame. Within the rectangle, there is a steep two-phase drop in price, pushing the RSI value down to the 26-level in the first phase, then to the 26-level again in the second phase. Why does this divergence occur? The initial price thrust severely depresses the RSI, because there is a big change in price behavior when it is compared to the previous 14 days. Just before the price correction in May, price was moving up in steps and the RSI value was traveling in a range between 50 and 70.



**Figure 2.17** Daily Russell 2000

Relatively speaking, the initial price drop caused the biggest change in momentum; hence the low in the RSI value soon after the start of the price correction down. As the price decline continues for 10 days, the price points include down days in the RSI calculation on Day 11. Day 12 is another down day. When the new price data is fed

into the RSI equation, the resulting relative momentum figure will be less spectacular than the initial RSI readings. This is why it is so hard to push the RSI past its mathematical resistance levels. On Day 14 of the RSI period, a persistent downward price momentum is required, one that is stronger than it was for the last 13 days. As soon as the price decline subsides, we know what to expect.

In mid-May, the RSI value flattens out at the 26-level because there is no significant extra downward momentum compared to the average of the last 13 days. When the first up day is seen in the second half of May, the RSI compares the up data from that day to the average (down) data of the previous weeks and reveals a surprisingly high value. Obviously, after 13 down days, a moderate price rise causes a relatively big change in momentum. As a consequence, the RSI jumps, despite the fact that the corresponding price rise is modest. This is how (DD)s are formed.

When the price drop resumes in the first days of June, there is another big change in momentum compared to the average of the last 13 days. The mild rebound in price causes such an out-of-proportion jump in the RSI value that the subsequent RSI drop only reaches the 26-level again, creating a positive divergence. The key to the formation of the positive divergence is, to a great extent, the amplitude of the price rebound. After a minor price rebound, causing less of an RSI value jump, the next wave down could have taken the RSI to a lower low.

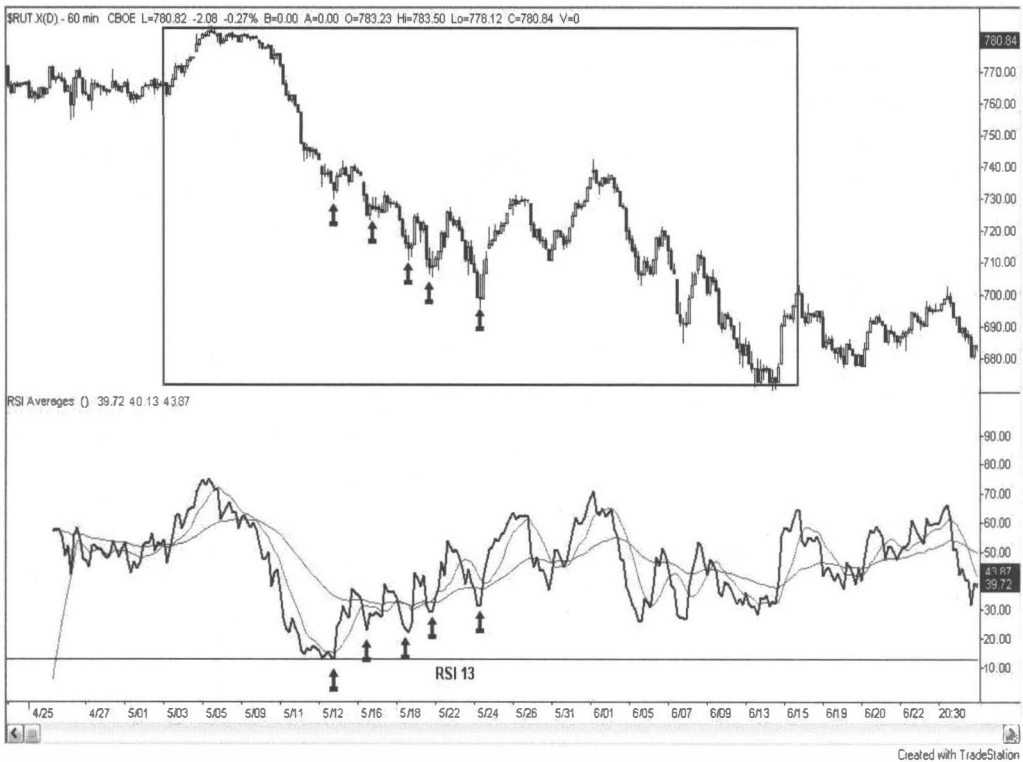


Figure 2.18 Hourly RUT, covering the same time period.

In the hourly chart, the RSI reaches its minimum value at the 13-level earlier than the daily RSI. The biggest change in momentum, compared to the average of the last 13 hours, is the transition phase from a price rise to a deep price drop. Once the price decline exceeds the 14-hour duration of the calculation, any subsequent price drop will be compared to an already negative price momentum. This means that the outcome of the RSI calculation will tend to produce less extreme values. Past that point, any weakening of the downward pressure on prices, and certainly any minor price rebound, will cause the RSI value to pop up, which leaves more room for the RSI to go down when it reverses down again.

The first arrow in the hourly RSI chart marks the point where the RSI value reaches its low at the 13-level. Each of the arrows marks the point where a mild price rebound causes a (DD) up in the RSI, which is followed each time by a price drop insufficiently deep enough to push the RSI back down to its previous low. Of the initial price drop, only about half the down leg causes a consistent decline in the RSI; the other half of the price drop corresponds to slowly rising values in the RSI.

The main reason for the consecutive higher lows in the RSI, marked by the arrows, is the minuscule price rebounds, which cause the RSI to rally. When this price rebound occurs closer to the RSI extreme, it has more effect on the amplitude of the RSI move. Consider the huge impact the initial price rebound has in the RSI at the first arrow. It becomes clear that the price move up required for a positive divergence in the hourly time frame is much smaller than the move up required in the daily chart. In fact, what looked like a straight down market in the daily chart turns out to be a staircase sell off in the hourly time frame. Each time the down pressure relaxes, the RSI moves up a notch. Obviously, positive divergence does not necessarily lead to uptrends.



**Figure 2.19** 30-Minute RUT

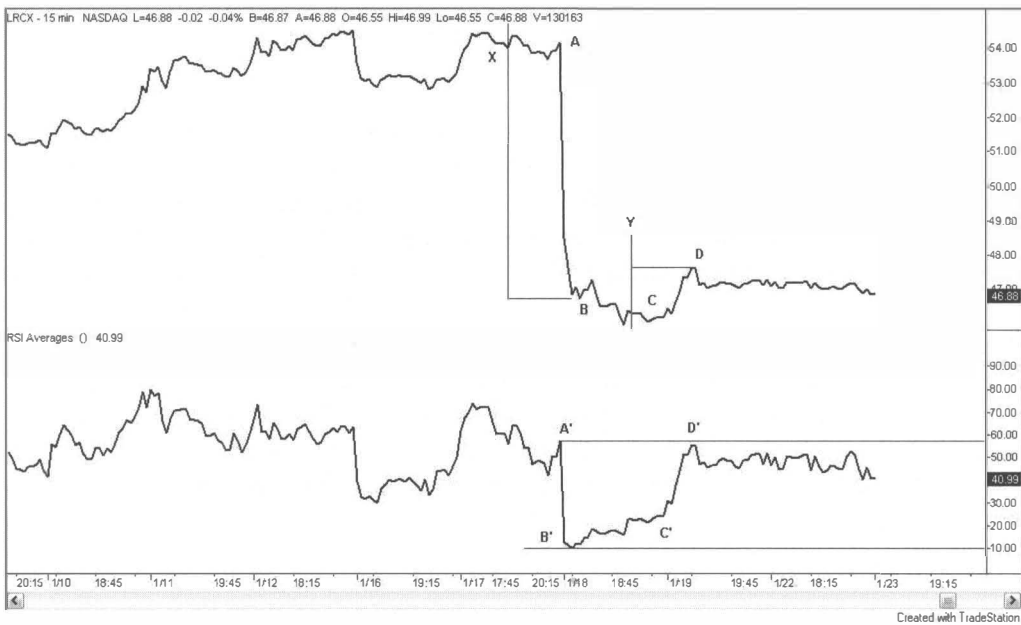
This is a close-up picture of the initial phase of the price decline shown earlier in the daily and hourly charts. Again, the initial price drop causes the biggest relative change in momentum. Also, the price rebound required to start the formation of a positive divergence is even smaller than it was in the hourly chart. In fact, with the RSI value near its low at the 11-level, a mere price consolidation (shown in the ellipse) is sufficient to propel the RSI value up to much higher levels.

Under these conditions, even the smallest hesitation in the downtrend causes the start of a positive divergence in this time frame. What seemed to be a straight price drop in the daily time frame (and even in the hourly chart) turns out to be a staircase decline in the 30-minute chart. From this time perspective, every price consolidation is sufficient enough to cause a jump in the RSI value, causing a positive divergence. Once again, we touch upon the subject of Time Frame Correlation! What looks like a vertical price decline in one time frame may be a staircase decline in a smaller time frame. We also know that minimal up-moves in price may cause the start of a positive divergence in the smaller time frame.

In this respect, the positive divergence in the smaller time frame warns us that the price decline was not as bad as it may have looked in the larger time frame. But this does not mean that tiny price corrections to the upside in the smaller time frame will grow to the size required to cause a positive divergence or a trend change in the larger time frames.

If this picture could be zoomed further to the 5-minute time frame, I am sure that the positive divergence would start even sooner. After the initial dive to its low point, minimal hesitations in the downward pressure on prices cause the RSI value to begin its upward travel to the point where it rises above the 40-level and enters bullish territory. We may even find a (DD+) signal prior to the price correction up that caused the start of the positive divergence in the daily chart. For the 5-minute traders, the positive divergence led to an uptrend in that time frame, (DD+) included!

In a downtrend, minor up-moves in price may cause the formation of a positive divergence in the small time frames, but sizeable price moves to the upside are required to cause the trend to change. However, what is only the start of a positive divergence for a longer-term trader may represent a full-blown uptrend for another trader who has a shorter-term outlook. The price moves required to start positive divergence in the larger time frame are of such a size that they cause (DD+) signals in the smaller time frames, propelling the RSI value into bullish territory. This also illustrates my point that the “trend” can hardly be defined in absolute terms. In fact, it is time frame specific.



**Figure 2.20** LRCX 15-Minute

This chart offers an extreme example of the occurrence of a (DD) and positive divergence. At Point B, the main look-back period for the RSI calculation (3.5 hours from 14 periods of 15-minutes) extends to Point X. This means that the price move from Point A to Point B is being compared to the price activity between Points X and A, resulting in a major relative momentum shift downward. The RSI value hits the 10-level at Point B'. At Point D, the RSI look-back period extends to Line Y. The momentum between Points B and C is down. Compared to this situation, the modest price rebound from Point C to Point D is significant, relatively speaking. As a result, the RSI value

jumps to the 60-level, nearly reaching the value of Point A'. The move up in the RSI to Point D' is massively out-of-proportion when compared to the drop from Point A' to Point B'.

Past Point B', the mere flattening out of the price drop results in an important momentum change compared to the extreme negative momentum found just a few hours earlier. This is the cause of the positive divergence at Point B' and Point C'.

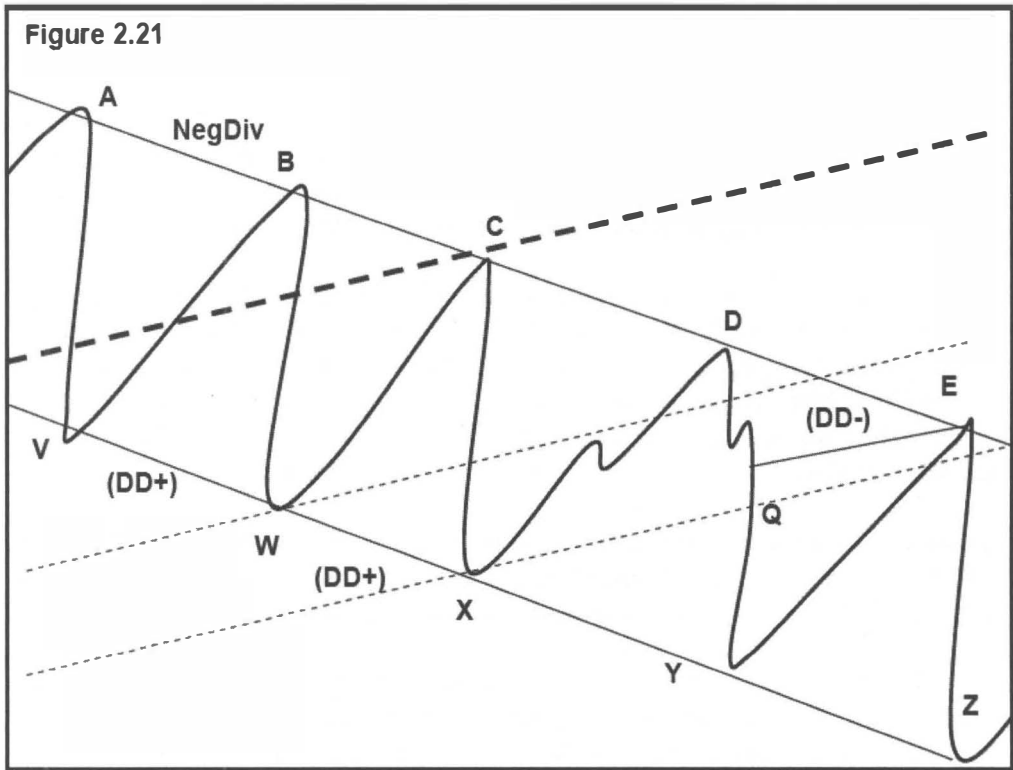
## **PART VI**

### **RSI SIGNALS REVISITED**

The buy and sell signals advocated by Andrew Cardwell make sense. Additionally, there is some logic to interpreting them within the framework of ascending and descending RSI channels of various sizes. I propose to reevaluate these signals and check the limit of their validity. When we are done, we should be able to formulate some general rules regarding the interpretation and the validity of the RSI signals that we have discussed so far.

We should look for the presence of relevant segments or channels in RSI charts, which are: descending channels anchored on (DD+) buy signal reference points (uptrend) or ascending channels anchored on (DD-) sell signal reference points (downtrend). These channels will provide valuable reference lines, as future RSI channels will be nearly parallel and, as we have learned, the RSI will be slipping from one channel into the next.

We have also learned that ascending channels will take the RSI values from bearish territory into bullish territory, while descending channels will cause the RSI to reach bearish territory, unless the RSI manages to break out. This is a key point – several important things happen when the RSI moves from one type of channel into another. We have briefly discussed this topic, but let me repeat the basics here as I refer to Figure 2.21.



Let's assume that a (DD+) was detected in this RSI chart at Points V and W, while at Points A and B, a negative divergence was found (meaning prices are higher at B than at A). Upon closer examination, we find that this negative divergence has pushed the RSI below its previous ascending channel (bold dashed line). The RSI reading at Point A is over 80, which is why a negative divergence developed as prices continued to move higher.

We have found the traces of a bull market, namely a descending channel with a (DD+), anchored on Points V and W. This descending channel will lead the RSI into bearish territory by continuing down. Following the (DD+), the RSI rebounds to Point C, where corresponding prices move slightly higher.

Prices retrace modestly past Point C, while the RSI drops rapidly to Point X, where it reverses up. A new (DD+) is formed in relation to Point W, as prices have been climbing the whole time. The market is still in bullish territory. Let's say that the RSI value at Point X is 45. The surge past Point X takes the RSI back to the upper boundary of its channel, but prices only reach a lower high at Point D. From Point D, the RSI returns to the lower boundary of its descending channel. Point Y is well below the RSI 40-level and the corresponding price retracement is deeper than the previous one.

As the RSI reverses from Point Y, there is no longer a (DD+) signal. The last price drop was not shallow. Now, we have a descending channel without (DD+) as the RSI enters bearish territory. The bullish character of the channel is lost because the RSI fails to break out from this channel in time. With the RSI rebound into Point E at a value of 60, prices hardly move up. Here we see the formation of a first (DD-). The reversal

down from Point E takes the RSI value to the 20-level as price accelerates its decline. We began with a bullish RSI signal and ended up with prices dropping. What happened? Where does the switch-over occur?

We cannot say that the negative divergence caused the price drop. It merely pushed the RSI below its original ascending channel. However, this resulted in a new (DD+), so the bullish character of the channel remained intact up to that point.

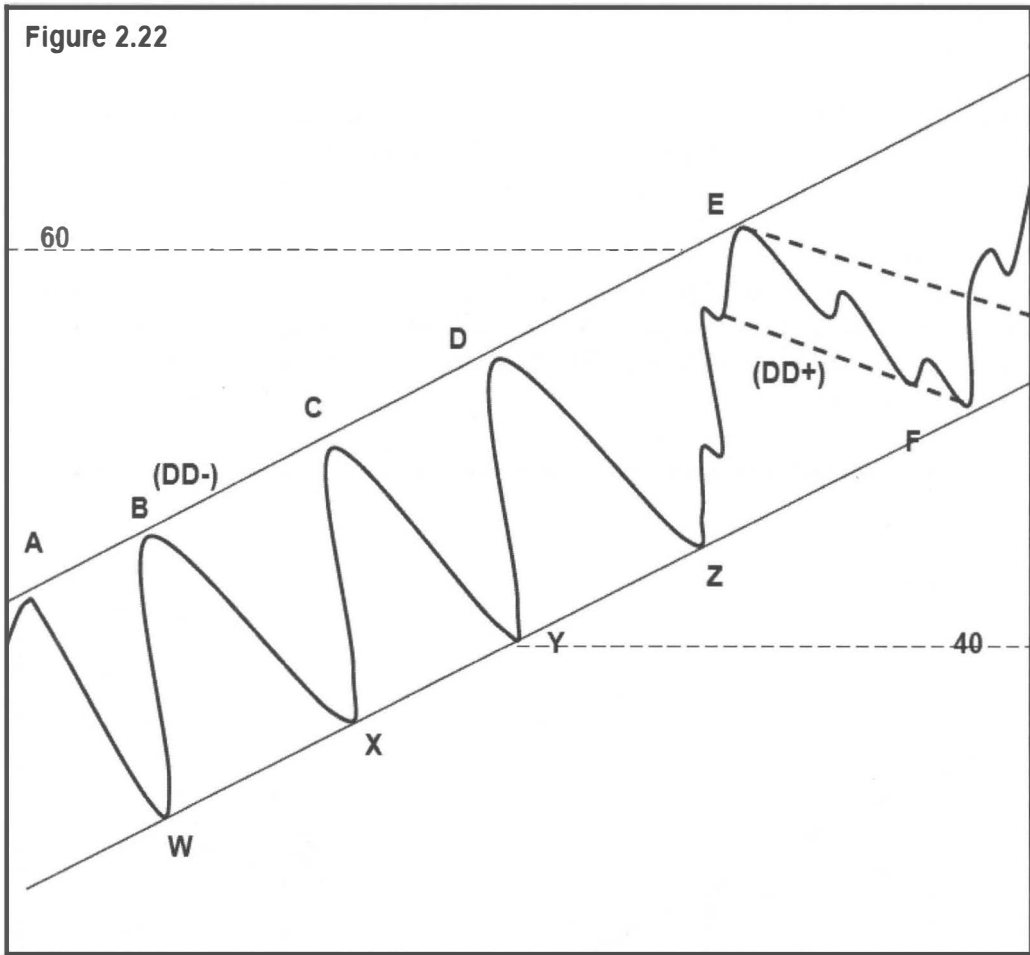
The RSI should have broken out from its descending channel to safeguard the uptrend. For instance, from the (DD+) at Point W, had the RSI stayed within the potential ascending channel by staying above the dotted line, the RSI would have escaped from its descending channel and new (DD+)s would have confirmed the continuation of the uptrend. The same scenario occurred past Point X, where the RSI broke below its potential ascending channel at Point Q and entered bearish territory.

***This teaches us about the validity of the (DD+) signal. For a (DD+) to take effect, the RSI has to stay within its ascending channel after the signal occurs. In other words, the RSI has to break out upward from its descending channel.***

If the RSI fails to do this while it is still in bullish territory, the consequences are not dramatic; it will probably form another (DD+) at a lower level. The difference with the prior (DD+) is that the price target for the latter signal is lower. In other words, the RSI is signaling a flattening, or weakening, of the uptrend.

***Related to the validity of a (DD-): For a (DD-) to take effect, the RSI must stay within its descending channel after the signal occurs. In other words, the RSI will have to break below its ascending channel.***

In our example, this is what happens after Point E, when prices reach lower lows. If the RSI fails while it is still in bearish territory, the consequence is not a change in trend; rather, it leads to the potential for a new (DD-) at a higher level. The price target for this new (DD-) will be higher than the previous one, indicating that the price decline is bottoming out. In either case, there is a switch-over point where the RSI enters the opposing territory and countertrend or reversal signals start appearing. Not surprisingly, in some cases these coincidental RSI signals turn out to be contradicting.



**Figure 2.22** illustrates a typical ascending RSI channel.

In Figure 2.22, Points X and Y are both situated in bearish territory with values below 40. A positive divergence is building as price at Point X is lower than at Point W. Points A-B-C are higher highs in the RSI, but prices show lower highs, hence the (DD-) signal. The Line A-B-C defines the upper boundary of the channel at its origin. For the (DD-) to take effect, the RSI needs to break below its ascending channel or stay within a descending channel after the formation of a (DD-). At Point X, prices may even reach the target of the (DD-), if the positive divergence is really steep.

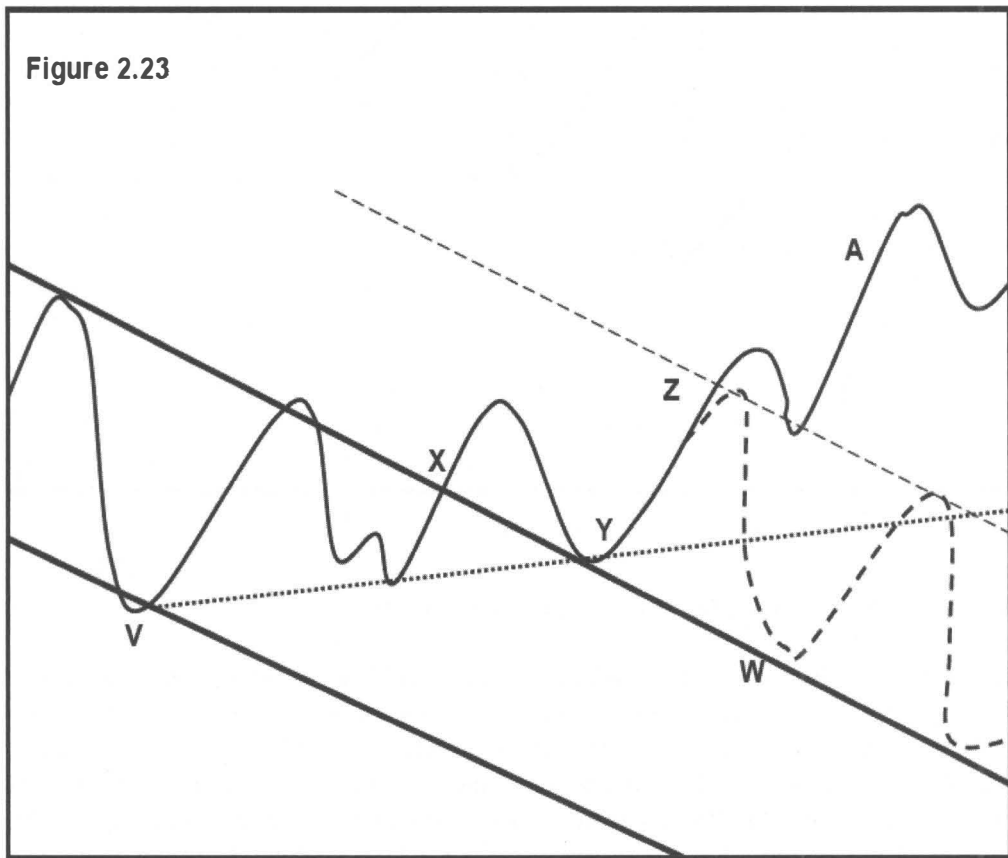
As the RSI value fails to drop below its ascending channel at Point Y around the 40-level, prices reverse up from a higher low. Above the 40-level, a rise in the RSI corresponds to a rise in prices and the price difference between Points Y and D is markedly larger than the price difference between Points W and B. The RSI fails to drop below its ascending channel and ends up in bullish territory, as the price decline bottoms.

At Point Z, the RSI reverses up again and price breaks above the (DD-) Lighthouse level, invalidating the (DD-). The price rally between Points Z and E is considerable

and the shallow retracement into Point F causes the formation of a first (DD+) within the ascending channel.

Past Point F, the RSI value pops into the next RSI segment and the rally accelerates as the RSI value rises well above 65. A negative divergence may form within this channel if the rally continues. Then, we could see the descending channel scenario unfold.

In the Figures 2.21 and 2.22, the RSI travels within its descending or ascending channel from one extreme to the other. In reality, the RSI does not need to reach its extremes to switch channels. Now that we know how to check the validity of the (DD) signals, we can look at what could happen when the RSI breaks out of its channel somewhere between extremes.



In **Figure 2.23**, the RSI is meandering within its descending channel up to Point V. Here it drifts towards the upper boundary and breaks out of the channel at Point X. Imagine that at Points X and Y, a FAST (DD+) develops. For this to remain a valid signal, the RSI must stay above the line drawn from V to Y, or the RSI will need to remain within its new ascending channel after Point Y. If it does, it is possible that the RSI could continue up to Point Z, where a new (DD+) or even a FAST (DD+) could form as prices rally higher. From that point on, the RSI could follow hypothetical Path A in this bullish scenario.

Let's assume that the RSI does not rise into the next channel segment at Point Z on the dashed RSI line. Instead, the RSI reverses downward and drops below the line from V to Y, invalidating the (DD+) created at Points X-Y. Does this activity mean the end the rally? Not necessarily. If this RSI break-down from Channel V-Y occurs high in bull territory, we can expect the RSI to form a new (DD+) at Point W, in reference to Point Y.

The price target for this new (DD+) will be lower than the previous one at Points X-Y, indicating that the rally may be losing steam. In this scenario, the RSI would have to stay above a line through Point W, parallel to Line V-Y (not shown). If the RSI fails, as shown in the example above, we must conclude that the RSI is moving within a descending channel again and will form a (DD-) within this channel. In this example, the RSI popped out of its descending channel, only to continue down in a new (parallel) descending channel.

Another hypothetical scenario would be that the RSI breaks below Channel V-Y, and the RSI bounce at Point W does not produce a (DD+). This means that the RSI break-down must have coincided with a relatively deep (as opposed to "shallow") price decline. In this case, we will see the formation of a (DD-) as the RSI continues down.

Let's summarize what we have learned. In a bull market, if the RSI drops below its ascending channel after hitting normal resistance near 75 to 85, assume that the RSI will form a new (DD+) when it reverses up. In a bear market, if the RSI breaks out from its descending channel after hitting resistance near 25 to 15, assume that it will form a new (DD-) when it reverses down.

In a strongly trending market, assume that the retracement in price that causes the RSI to break down or break out will be shallow. This will lead to a resumption of the main trend. If the break-down or break-out in the RSI does not lead to the formation of a (DD) signal, this means that the retracement threatened the trend in that time frame. We will need to monitor which channel the RSI will take and wait for the formation of a new (DD) signal. If the next (DD) signal is contrary to the trend, the retracement is incomplete and the continuation of the retracement may even cause the trend to reverse in that time frame.

Let's apply what we just learned in another example, Figure 2.24. We have detected a (DD-) along the top boundary of the Channel X-Y-Z. Prices cascade down, while the RSI is curling up in a positive divergence. At Point Y, the RSI value fails to drop below its ascending channel. As this is still bear territory, it does not mean the bear phase of the market is over. Prices still reach new lows, but the RSI stays in its ascending channel. At Point Z, it reverses up again from the 40-level and prices reach a higher low. Past Point Z, the channel loses its bearish character as the RSI rises to bullish levels. At Line A, a first (DD+) appears. The RSI stays within its ascending channel and prices rally to a new high. Negative divergence occurs as the RSI reaches the upper boundary of the descending Channel<sup>2</sup>. Note that the top line of this Channel<sup>2</sup> defines a negative divergence since April of 2006.



**Figure 2.24** Daily NKS

Negative divergence pushes the RSI below its ascending channel in the first week of September. *This activity invalidates the (DD+) detected at Line A.* But since the RSI is in bullish territory, this drop results in a new (DD+) at Line b (for now), as shown in Figure 2.25. For this (DD+) to be valid, the RSI must stay within its (new) ascending channel.

The early channel, defined by points X, Y and Z, is too narrow to be counted as a channel, so the ascending channel is redefined in Figure 2.25. This new, wider ascending channel makes sense as well. At its upper boundary, it is anchored on the reference points of a (DD-) and at its lower parallel boundary, it provides a reference line to check the validity of the (DD+) signal at Line b.



**Figure 2.25** Daily NKS

The original ascending channel from X to Z is a sub-channel, and the (DD+) at Line b is the RSI transition into a new ascending sub-channel, starting from a lower level.

After rebounding off a channel bottom, the RSI appears to be forming a steep and/or narrow channel. This is the case in March 2006. By connecting the initial lows in the RSI, a channel appears; one that is not parallel to the previous channels because it is much too steep. This indicates that a *sub*-channel up is forming and that another sub-channel down will bring the RSI to the bottom of a realistic ascending channel, which is parallel to the well-anchored previous channels.

On another level, namely from the Channel<sup>2</sup> perspective, we can say that this picture looks familiar. We saw a descending Channel<sup>2</sup> featuring negative divergence earlier, but there is no (DD+) at Point X in relation to the low in March 2006. This means that the RSI, which failed to break out from its descending Channel<sup>2</sup>, has entered bear territory. Indeed, the value at Point X is near the 25-level and the top of Channel<sup>2</sup> is at the 60-level. The (DD-) just detected is obviously the first (DD-) within this descending Channel<sup>2</sup>.

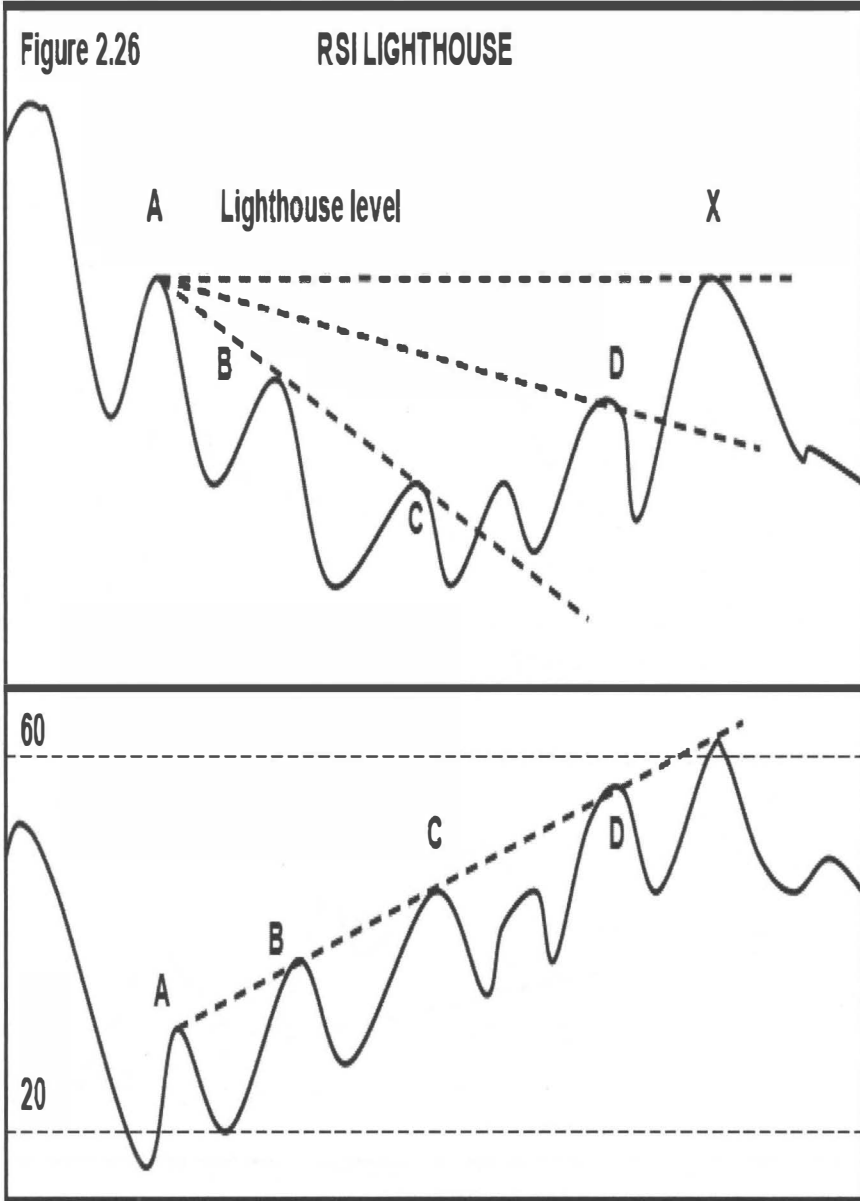
This could be considered a reversal signal. It corresponds to the Head & Shoulder scenario that we studied earlier. As it turns out, there is indeed a giant H&S formation visible in the price chart! It is clear that the RSI needs to break out from its Channel<sup>2</sup> in order to avoid the effect of the (DD-).

Now let's return to the first (DD-) discovered, the one labeled X-Y-Z. The origin of this (DD-) in the RSI corresponds to Point O1 (Origin 1) in price. Within this initial ascending sub-channel, we notice that the RSI fails to break down at Point Z. The consequence is that the RSI enters bullish territory. After prices start their climb, they exceed price Level O1, invalidating the initial (DD-). Remember, in the price chart, a (DD-) is formed at a lower top, but once price exceeds the level of the first reference point of the signal, the signal is no longer valid.

So, the initial (DD-) becomes invalid as price exceeds Level O1. No wonder we see a (DD+) appear within this channel at Line a as prices reach Level O1. However, following this (DD+), the RSI fails to continue upward and drops below its channel. Why? The Channel<sup>2</sup> top line forced it into a negative divergence. As the RSI drops below its channel and forms a new (DD+) at Line b (note that the price target for this signal is lower than at Line a), we discover the real channel of interest.

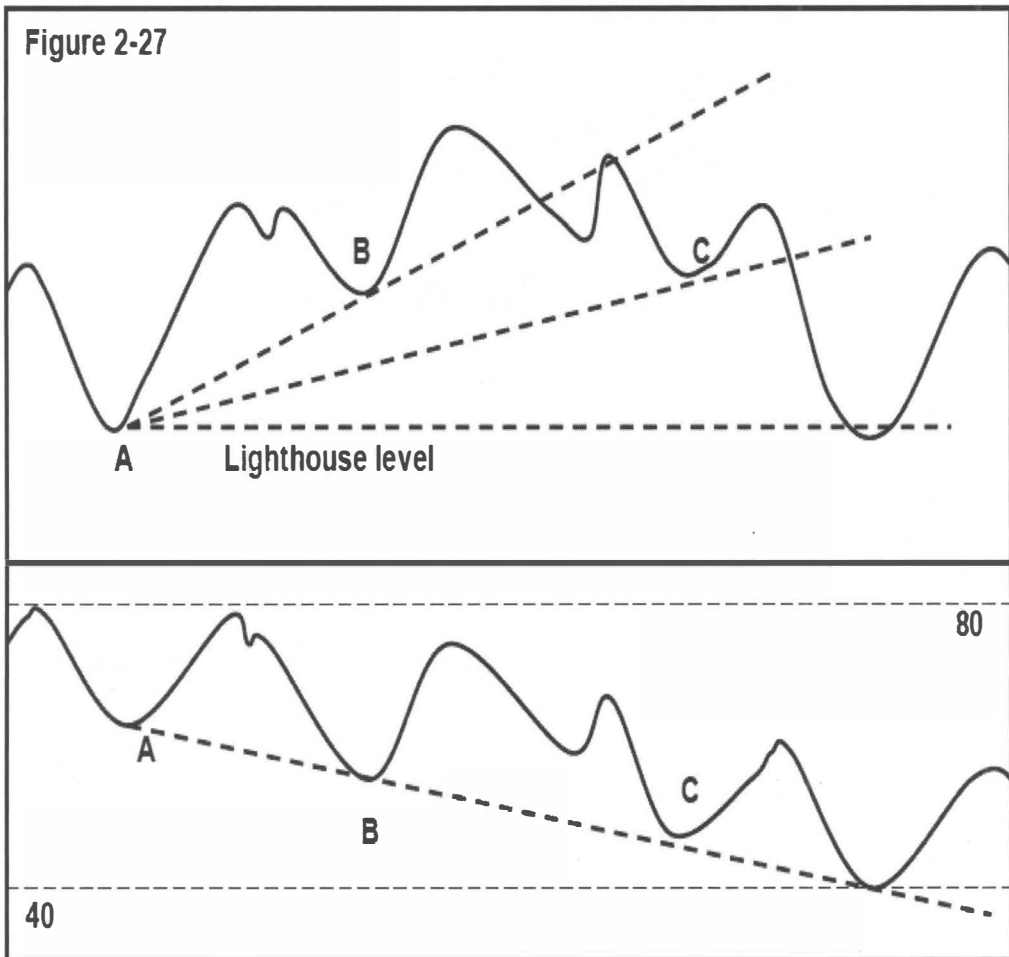
This larger ascending channel is anchored on the reference points of a (DD-), which (in price), has its origin at Point O2 (Origin 2), so this (DD-), which was labeled "reversal signal" earlier, is still valid. In price, the Level O2 could be considered a resistance line. This is the level that defines the right shoulder of the giant H&S formation discovered when analyzing the RSI behavior in relation to its Channel<sup>2</sup>. Price levels such as O1 and O2 will be labeled Lighthouse levels, originating at Lighthouse points in price and RSI. It is clear that, by definition, a (DD+) or (DD-) becomes invalid when price breaks the signal's Lighthouse level. Why this label and what does it mean?

**PART VII**  
**THE RSI LIGHTHOUSE**

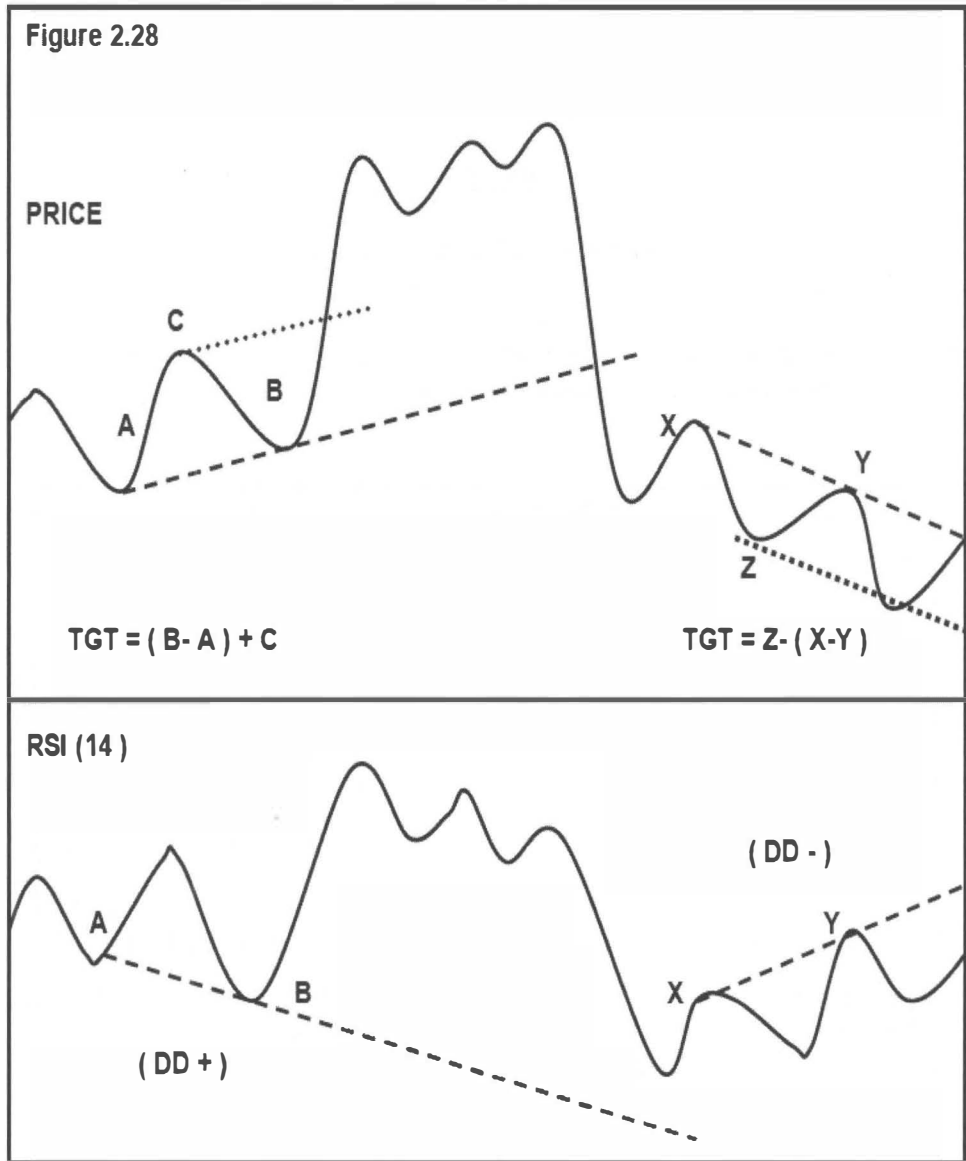


**Figure 2.26** provides a graphic illustration of the “Lighthouse level” concept. This chart has a (DD-) signal at Points A, B, C in the RSI, with the corresponding ascending channel anchored on its reference points. The lower boundary of this channel defines a positive divergence. The (DD-) signal at Point A and Point B leads to a price decline of the price target level. Following the second (DD-) at Point B to Point C, the RSI fails to break below its ascending channel and rises further, into bullish territory. The price decline bottoms out and price reverses upward. At Point D, price is still lower than at Point A, while the RSI is higher at D than at A. There is still a valid (DD-) signal between Point A and Point D. In the price chart, drawing the corresponding lines [connecting the (DD-) reference points] gives us the impression that Point A is a “lighthouse” shining over the price “landscape” below.

It is clear that the limit of this (DD-) will be reached when prices exceed the Lighthouse level, which is considered resistance, as it marks the limit of the validity of the (DD-).



**Figure 2.27** is an inverse picture of the (DD+). The price low where the (DD+) signal originates is labeled the (DD+) Lighthouse. The reference lines of the RSI signals can be transferred onto the price chart.

**PART VIII****(DD)-BASED SUPPORT & RESISTANCE LINES**

**Figure 2.28** shows a hypothetical up-and-down cycle in price with the corresponding RSI chart. The (DD+) signal and (DD-) signal, with their respective price targets, and the method of calculation, are also shown. When a (DD+) signal is detected in the RSI, the price reference points are connected, therefore defining a price support line.

While observing the price target calculation, we see that the price target is situated on a line parallel to the (DD+) support line. The difference in price between Point B and Point A is added to the price high. In this example, price reference points A and B are

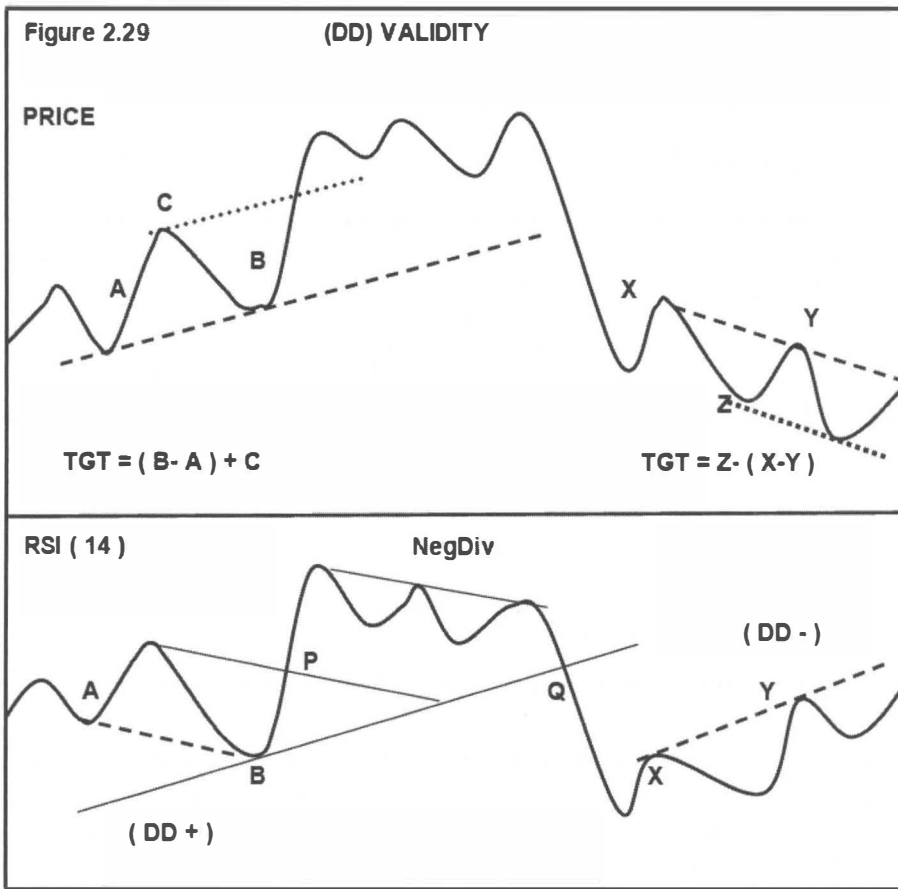
connected to define price support Line A-B. From the price reference Point C, a parallel line is drawn. The price target for the (DD+) signal is situated on this line. The (DD+) based lines define a climbing price range. These lines are used as a reference for the evaluation of the validity of the (DD+).

At the (DD-) at Point X and Point Y, the price reference points are connected to obtain resistance line X-Y. The price target for this (DD-) is situated on the parallel line originating at Point Z. These lines define a declining price range, which provides a means for determining whether the (DD-) signal remains valid.

### PART IX

#### VALIDITY OF (DD) SIGNALS

Let's take another look at the validity of (DD) signals and the definition of the price support line, based on the (DD+) price reference points.

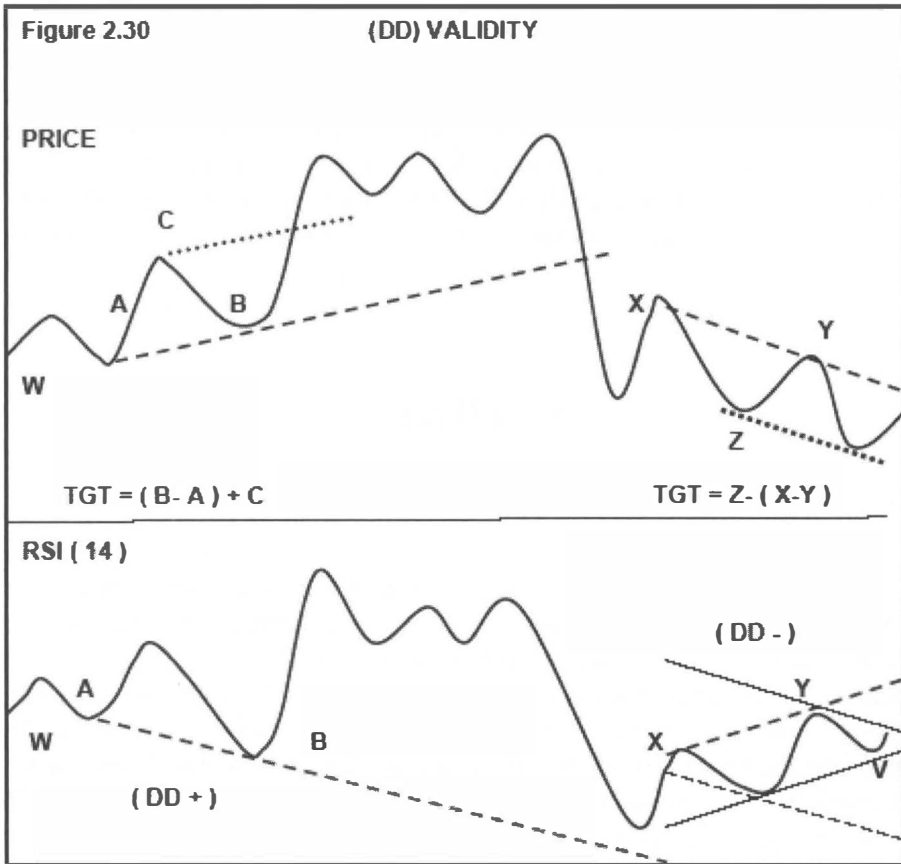


In **Figure 2.29**, the (DD+) signal at Point A and Point B (in the RSI) takes effect if the RSI remains within its ascending channel. (The ascending channel I reference is the

line parallel to previous channels, from Point B in the RSI). This line passing through Point B is the lower boundary of the ascending channel referenced for this (DD+).

Past Point B, the RSI stays in its channel and continues to climb. At Point P, the RSI slips into the next segment as price continues to rally. Finally, we see price topping out, while the RSI indicator is diverging with price. This negative divergence leads the RSI to the lower edge of its ascending channel, and at Point Q, the RSI breaks below its ascending channel. We can say that the validity of the (DD+) signal at Point A and Point B ends when both price *and* the RSI have broken below their respective ascending reference lines. In this example, the (DD+) signal becomes invalid, but is not bearish. After all, the (DD+) price target was exceeded. It is important to look for a new (DD+) that will provide new reference lines.

Assuming that the high RSI value at the start of the negative divergence will be around the 80-level, the RSI break-down should lead to the formation of a new (DD+) at a lower level. In Figure 2.29, a hypothetical chart, the RSI drop leads to a (DD-). However, this is not realistic, as the “synthetic” Point B and Point X in the RSI are at about the same level. [Point X is at the origin of a (DD-); it should have been at a lower level than Point B]. So much for artificiality!



We refer to **Figure 2.30** for an assessment of the validity of the (DD-).

The (DD-) signal at Points X and Y will take effect when the RSI stays within its descending channel. At Point Y, one can draw a line parallel to the previous channels (to Line A-B in this example). This line is the upper boundary of the descending channel and is a required reference line. At Point V, the RSI fails to drop into the lower RSI segment. As a consequence, the RSI continues up and breaks out of the descending channel. Price rebounds, but it does not break the price resistance line. The initial (DD-) signal at Points X and Y is not invalidated. However, as the RSI continues up, the formation of a new (DD-) on the extended line X-Y is probable.

If the RSI continues up, the formation of a (DD+) in the ascending channel could mark the resumption of the rally. This analysis leads us to the following conclusions about the validity of (DD) signals:

***(DD+) and (DD-) signals remain valid until the RSI exits its reference channel and price breaks the (DD) based support/resistance line. The (DD) signal ceases to exist when price breaks the Lighthouse level of that signal.***

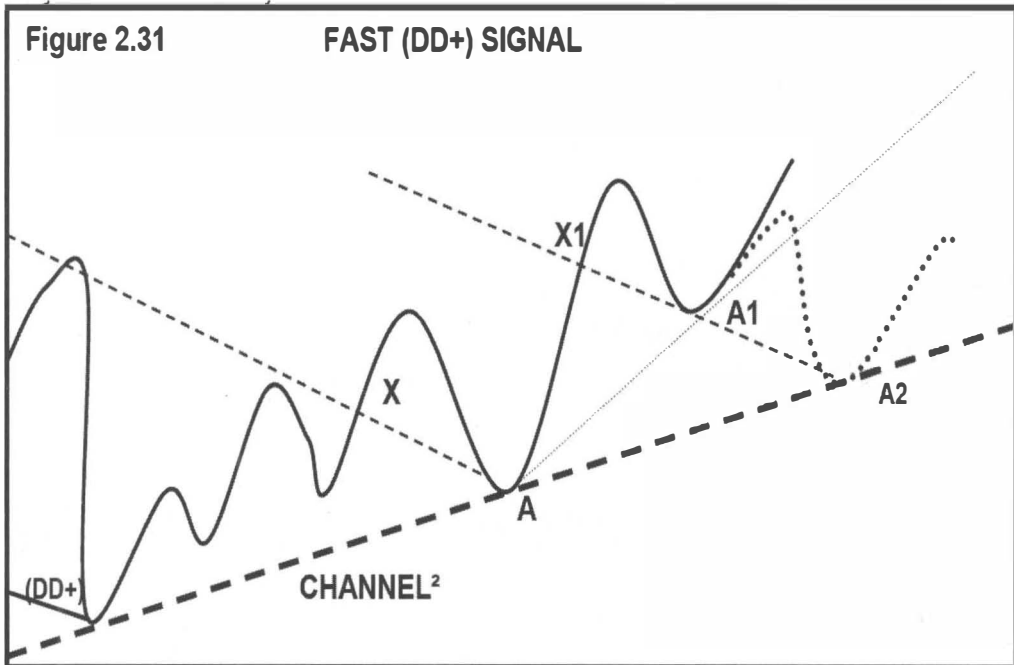
***The invalidation of a (DD) signal is not a direct indication of a trend reversal in that time frame. Most of the time, the invalidation of a (DD) leads to the formation of a new (DD) of the same type, but with a more modest price target.***

I need to mention a special circumstance of the effects of Price/RSI divergence. In some cases, price will break the (DD) reference line, (whether or not it is a support or resistance line), and the RSI will not break the validity line. When this occurs, the (DD) signal remains valid. These conditions can exist when a Price/RSI divergence causes price to break the reference line, while the RSI remains within its channel. However, in such cases, this RSI behavior leads to the formation of a conflicting (DD) signal. In such cases, both (DD) signals remain valid until one is invalidated by the effects of the other.

## **PART X**

### **FAST (DD) SIGNALS**

The (DD) signals always consist of two reference points in the RSI. This means that two RSI extremities are needed at tops or troughs in order to define a (DD) signal. However, we learned that a series of (DD+) signals or (DD-) signals often develop in a trending market. In a bull market, we get a sequence of (DD+) signals within an ascending Channel<sup>2</sup>. After the initial (DD+) signal (reversal signal) occurs, the RSI will pop into the next up-segment every time the price rally enters a new phase. We also know that (DD+) signals remain valid until the RSI drops below its Channel<sup>2</sup>. This allows a new type of (DD+), namely the FAST (DD+), for which we need only *one* RSI extremity.



**Figure 2.31** provides two examples of FAST (DD+) signals at Point X and Point A, X1 and A1. Suppose there is a (DD+) signal at the beginning of this chart, above the 40-level, with an established Channel<sup>2</sup> lower boundary. We know that price is going up, as long as the RSI stays above this Channel<sup>2</sup> reference line. Logically, we should see a series of valid (DD+) signals develop on or above this line.

When the RSI breaks out of its initial (DD+) segment (at Point X), we know the price rise has entered a new phase. When the RSI reverses up from Point A, the corresponding price will be higher than at Point X. This is another (DD+) signal. Similar conditions exist at points X1 and A1.

*Any time that a line can be drawn through Point A1, parallel to an earlier (DD+) descending channel, and price at A1 is higher than at X1, a FAST (DD+) has been detected.*

If the first (DD+) signal is missed, it is not necessary to wait for the formation of another “normal” (DD+), requiring the occurrence of two RSI extremities. If after Point A1, the RSI fails to stay above Line A-A1, prices will remain above their level at Point X1, as long as the RSI reverses up from the Channel<sup>2</sup> boundary. In this example, the RSI reverses up at Point A2; it can be assumed that price at Point A2 is higher than at Point A1, so this is a classic two-point (DD+) signal.

In a downtrend, FAST (DD-) signals can be detected by using one RSI extremity and a line running parallel to an earlier (DD-) ascending channel.



**Figure 2.32** Daily Oil Index

An example of a FAST (DD+) is found in the Oil Index chart examined earlier in the context of positive divergence and its consequences. The second positive divergence, starting in February of 2003, defines the bottom of an ascending channel, within which a first (DD+) appears by the end of April. In early May 2003, the RSI value breaks out and pops into the next RSI segment, forming a FAST (DD+) well above the 40-level. A classic (DD+) is not present; although, it may appear by the end of June, when the RSI will probably reverse up from its Channel<sup>2</sup> as the rally continues.

Please note that two RSI extremities in a smaller time frame moving average define a FAST (DD+) signal in a larger time frame. With a FAST (DD+) signal, it is sometimes difficult to determine the exact price that corresponds to the reference crossing point in the RSI. Switching to a smaller time frame allows the price level to be determined. Also, you might even find the corresponding (DD) signal in that time frame is near two RSI extremities.

## PART XI

### PATTERNS IN THE RSI

#### RSI Triangles

Triangle formations in RSI charts are not rare. As the RSI travels within its multiple channels, it constantly hits lower or upper channel boundaries, where it either breaks out or reverses its course. If we draw the signal reference lines in the RSI chart, [(DD) reference lines and (DD) validity lines], a matrix is obtained within which the RSI is meandering. Sometimes, the formation of a triangle in the RSI chart indicates that a significant point has been reached.

The (projected) apex of these triangles is situated on or near the RSI value of 50. The 50-level marks the point where bullish and bearish forces balance. As the RSI progresses within the triangle, the market's indecision becomes more and more visible until the RSI breaks out of that triangle. This type of triangle is often observed when two contrary (DD) signals exist in the same time frame.

Such a situation can only exist when the RSI is moving in and out of bullish and bearish territory around the 50-level *and* prices are moving up and down, triggering bullish and bearish (DD) signals in succession. Ultimately, the balance of the market shifts one way or the other and, as is the case with price triangles, the break-out or break-down of the RSI often causes important price moves, or even a trend change, within a time frame.



Figure 2.33 Weekly EUR/USD

In 1999 and 2000, the RSI is meandering within a descending Channel<sup>2</sup> as prices slide lower. By the end of 2000, a (DD-) signal forms within this descending Channel<sup>2</sup>, which is typical of a bear market. In Quarter 3 of 2001, the RSI reverses down after hitting the upper boundary of the descending Channel<sup>2</sup>, indicating that the (DD-) signal is still valid and that the RSI is apparently staying within its descending Channel<sup>2</sup>. However, following this (DD-), the RSI fails to break below its ascending channel and finally ends up on the edge of bullish territory around the 40-level. The indecision caused by the RSI is reflected in the formation of a large triangle, with the RSI value zeroing in on the 50-level. The RSI break-out to the upside and the appearance of a (DD+) mark the start of the uptrend.



**Figure 2.34** Weekly SPX

In 2000, after a 5-year rally, the negative divergence pushes the RSI below the giant triangle that had been forming since 1999. The triangle is defined by the negative divergence at its top and the bullish (DD+) validity line, which forms the lower boundary of the ascending RSI channel. The apex of the triangle is situated near the 50-level, signaling indecision in the market, questioning whether to break the negative divergence or invalidate the major (DD+) signal. In the price chart, we see nothing alarming until prices drop below the bullish (DD+) support line, marking the beginning of a major price decline. As the RSI value breaks below the 50-level, the RSI enters bearish territory (after some hesitation) in Quarter 4 of 2000.

In early 2001, the RSI rebounds to hit the underside of the triangle. This causes a series of bearish (DD-) signals, confirming the continuation of the price decline. The dashed

line defining the bullish (DD+) signal and an imaginary extension of the negative divergence line serve as the lower and upper boundaries of an RSI channel.

Note that the example weekly charts of the SPX and EUR/USD both show a trend change after the RSI breaks from the triangles. In the case of the EUR/USD, the trend changes from down to up, after the transition through the significant RSI triangle. In the case of the SPX, the trend changes from up to down. In both cases, the relevant indecision triangles in the RSI form on the 50-level.

### The RSI Squeeze

In a strong rally, when the RSI value is in the high 70s, a break-down of the RSI (to lower values from its ascending channel) may only cause a minor price correction downward. As the RSI reverses up from a lower level, it forms a new (DD+). At this time, prices are ready for a rally to higher highs. However, when the RSI is in an ascending channel, having difficulty breaking above the 60- to 65-level, and is repeatedly being squeezed toward the channel's lower boundary, be prepared for a steep price decline when it finally breaks down from the ascending channel.

This pattern is labeled the “RSI Squeeze.” It features the RSI, trapped between the rising boundary of its ascending channel and the 60- to 65-level. The RSI Squeeze is an interesting signal that only occurs in the RSI. It is relatively easy to detect and can be very rewarding.

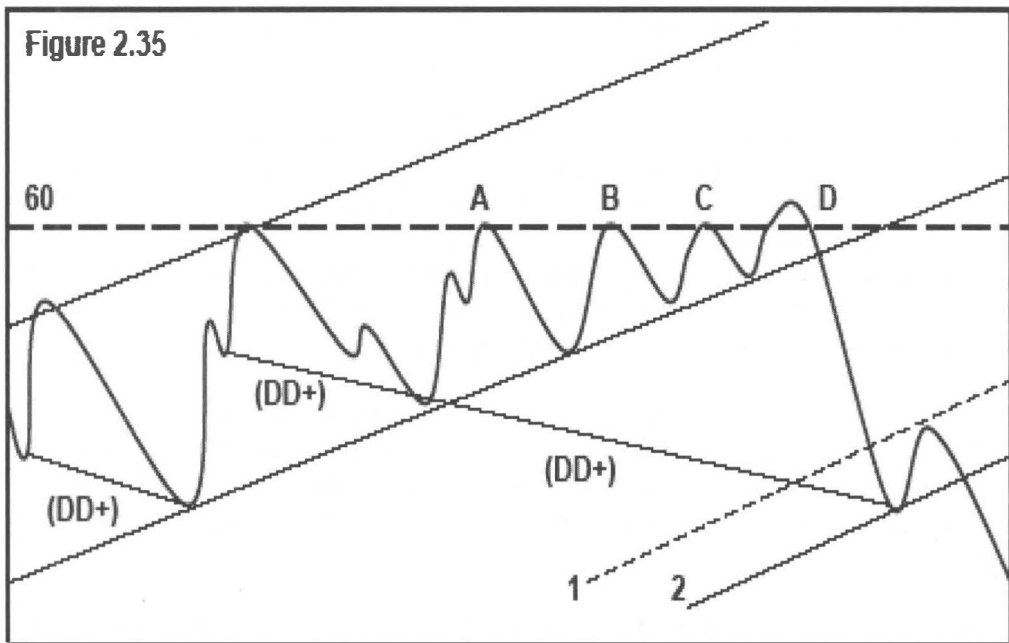


Figure 2.35 RSI Squeeze.

If this rally is to continue, the RSI value must fail to rise above the 60-level. Remember, bullish RSI territory is defined within the value range from 40 to 80, while 20 to 60 is considered bearish territory. In this case, the failure of the RSI value to decisively rise

above 60 is a sign of serious market weakness. Please note that this is not the same situation as the RSI hitting resistance around the 75- to 80-level, where it is often compressed to develop a negative divergence with price.

The RSI drop from the 60-level is a situation that would indicate a sudden, deep price retracement or trend change if the ensuing decline caused the RSI values to enter bearish territory in the larger time frames. Imagine an RSI Squeeze in the hourly time frame while there is a rally in the daily time frame. We know that strong momentum in the daily time frame should easily propel the hourly RSI values into the high 70s and low 80s. If that is not the case, be ready for a quick downward correction. It is possible that the break-down following the RSI Squeeze could trigger a chain reaction in the larger time frames. This is how major price corrections and/or trend changes start: RSI action in a particular time frame triggers a reaction in the larger time frame, not unlike a falling rock causing an avalanche.

In a bear market, possibly after a (DD-) signal has formed, the RSI Squeeze is characterized by the RSI refusal to drop below the 40-level. Also, it may get squeezed between this RSI level and the descending RSI channel. As the RSI pops up from its channel, the corresponding price movement is likely to be violent.

*The RSI Squeeze can be mistaken for simple divergence, but it is a much stronger signal.* The key to identifying this signal is the unrealistic level where the RSI value gets stuck. In the daily time frame, the 60-level is an unusually low value for an RSI in an uptrend; the 40-level is an unusually low value for a downtrend. In the hourly time frame, an RSI hang up at the 70-level in an uptrend is an indication of market weakness; the 30-level in a downtrend is an indication of market strength.

Figure 2.35 shows what an RSI Squeeze would look like in a daily chart. At the beginning, the RSI is moving up within its ascending channel, forming consecutive (DD+) signals. At Point B, the RSI fails to convincingly break out of the channel before dropping back to the channel bottom. Price may have reached a new high, but the failure of the RSI indicator to rise above 60 (in an uptrend) signals trouble ahead. At Point B and Point C, the RSI fails to rally above the 60-level. At Point D, the RSI makes a last attempt to break out before plunging almost vertically, breaking down from its channel.

The scenario at Point D is not a requirement, but it is often observed. In daily charts, the RSI Squeeze occurs around the 60- to 65-level, which is an unrealistically low level for the RSI to get stuck in an uptrend. In the hourly time frame, the RSI Squeeze picture will be identical, but the reference RSI level may be as high as the 70- to 72-level.

The RSI dives past Point D. Expect the RSI value to initially drop to the extension of a previous (DD+) reference line. If the downward correction is “shallow” in the larger picture, a (DD+) may be formed as the RSI reverses up and the rally may resume. However, if the RSI value drops below 40 (into bearish territory), the next signal may be a (DD-) signal, or even a FAST (DD-) signal, and the RSI could cascade down as the price drop accelerates. This is not unlikely, given the fact that the RSI Squeeze occurs at the 60-level.

If the RSI Squeeze and the subsequent RSI drop should cause a (DD+) signal to be invalidated in the larger time frame, the price slide could extend and cause a (DD-) signal in the larger time frame as well. This is not an unusual scenario after an RSI Squeeze. After all, if there was a (DD+) signal in the daily chart, but ensuing price action was so weak that the RSI failed to rise above 60 in the hourly chart, we should not be surprised to see the (DD+) signal fail.

In a downtrend, the RSI reference levels will be 40 to 35 in the daily time frame and 30 to 28 in the hourly time frame.

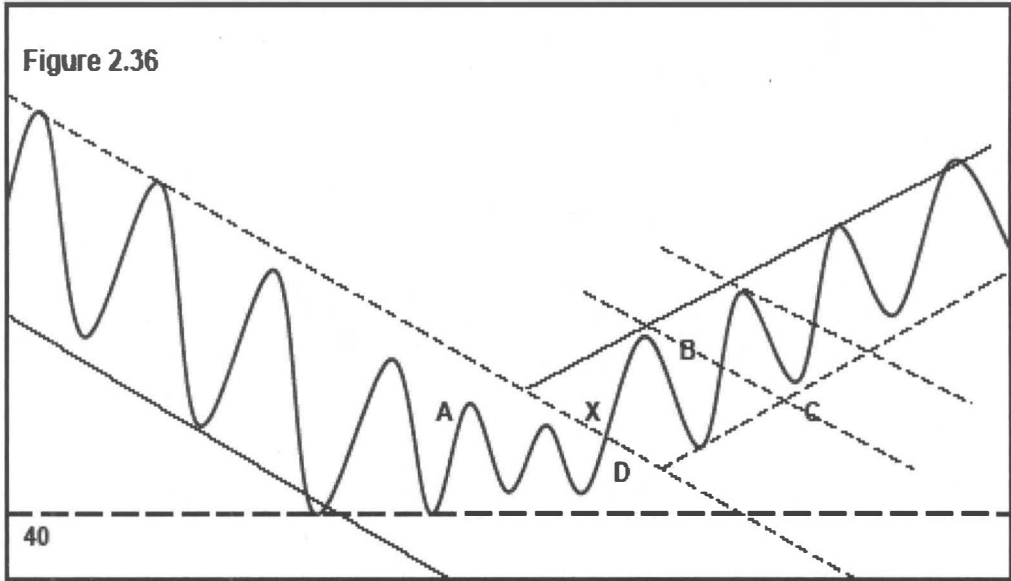
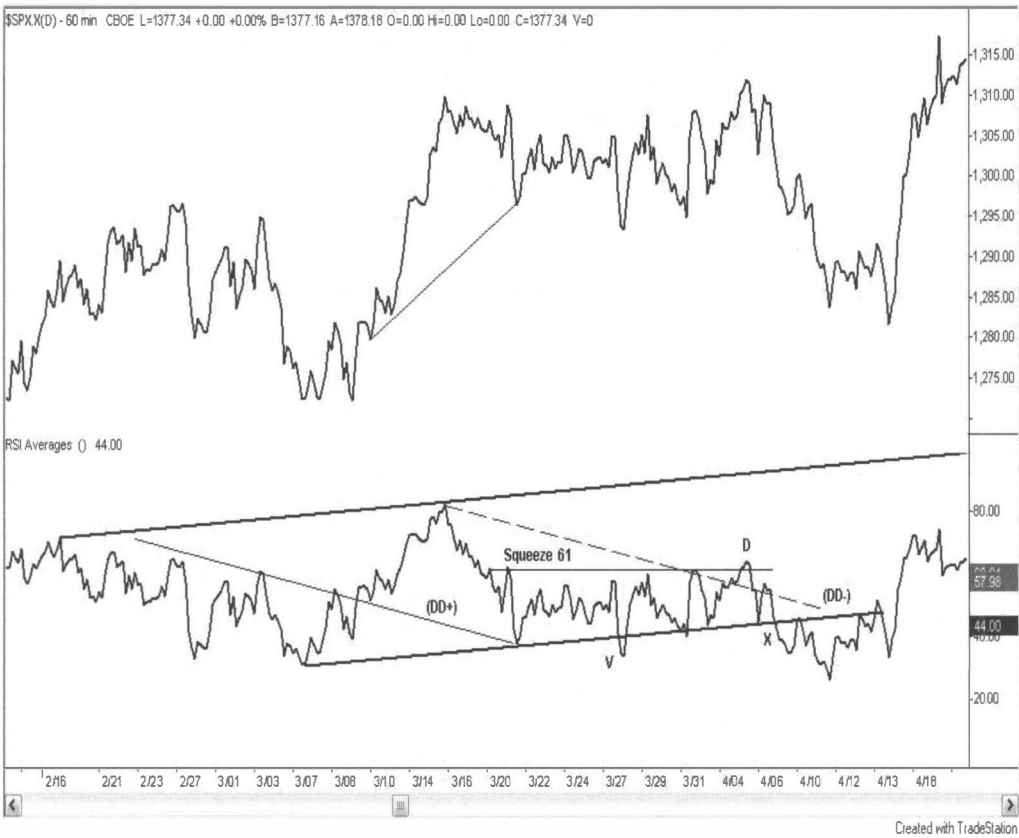


Figure 2.36 RSI Squeeze in the Hourly Time Frame



**Figure 2.37** Hourly SPX

This chart offers a nice example of an RSI Squeeze in the hourly time frame. After the (DD+) signal on March 21, there is a clearly defined ascending channel. Here we would expect to see the formation of new (DD+) signals as the rally continues.

The RSI is unable to rise above the 60-level, which is quite unusual. In the hourly time frame, the RSI value should be able to reach the 80-level easily, as it did on March 15.

At Point V, there is a downward break through the ascending channel, invalidating the earlier (DD+) signal. This type of break is often an early warning that the RSI is going to leave its channel in the near future. At Point D, the RSI finally seems to break out and pop into the next slice, but fails again near the 65-level.

At Point X, the RSI finally surrenders and drops below its ascending channel and prices drop almost vertically. Past Point X, after a minor rebound, the RSI reverses down from the underside of the channel, giving a FAST (DD-) signal, followed by a regular (DD-) a few days later. The price target for this (DD-) signal was not reached when the RSI broke out from its descending channel, after being pushed above 40 in the positive Price/RSI divergence that developed between April 11 and 15.



**Figure 2.38** Dow Jones Industrial Index Futures Contract

This chart provides another example of the RSI Squeeze. The RSI moves within its descending channel, forming consecutive (DD-) signals. Then, the RSI refuses to drop below 25 and is squeezed between the upper boundary of its descending channel and the RSI 25-level. As it pops out of its descending channel and rises above 40, (after a final positive divergence), an explosive price rally occurs, taking the RSI well above 80.

In price, the (DD-) Lighthouse levels are exceeded; there is a potential (DD+) signal around the 40-level, if the RSI reverses up on November 8.

Next, let's examine a sequence of the EUR/USD cross-rate pair daily charts.



**Figure 2.39** Daily EUR/USD

The ascending channel begins in bearish territory. After a pair of positive divergences at the end of 2005, a (DD+) reversal signal forms in February 2006. As the RSI keeps working higher in its ascending channel, a second (DD+) signal forms in June 2006. Following this signal, the RSI is unable to rise over 60. This is an unusually low value for the RSI to remain; the RSI Squeeze signals persistent weakness in the Euro over a 5-month period. In October, the RSI drops below its ascending channel and the Euro slides from 1.28 to 1.25. The RSI reverses upward from the last (DD+) reference line after touching the 30-level.

All things considered, the price decline is not as large as anticipated. After all, the RSI dropped well below the 40-level. Still, it looks like the RSI has entered a descending channel and the recent RSI advance is out-of-proportion with the rise in prices. The RSI reaches the 62-level, while price is lower than on previous occasions. This is another sign of weakness.



**Figure 2.40** Daily EUR/USD (continued from Figure 2.39).

The RSI reverses down from the 60-level. At this point, it is clear that a continuation of the rally is excluded, as long as the RSI is unable to decisively rise above 65. In other words, the RSI will have to break out of its descending channel in order to avoid a push into bearish territory. Given the weakness of the Euro, it is likely that the RSI will reverse down when it reaches the upper boundary of its descending channel, which will be around 60 or 65, if not lower. This means that the RSI may enter bearish territory on its way down to the lower edge of its channel.



**Figure 2.41** Daily EUR/USD (continued from Figure 2.39 and Figure 2.40).

The RSI seems ready to break out of the RSI Squeeze on its way to the upper boundary of its descending channel. If it breaks out of the channel at the arrow, it means that the RSI is moving within its ascending channel. This chart has been completed with additional references. The main one is the line through Point Q, which is the reference point for the latest (DD+) signal, running parallel to the previous ascending channel.

By doing this, we have defined two possible scenarios. The RSI continues down within its newly formed descending channel or the RSI continues moving up after the recent (DD+) signal within the ascending channel, (which is parallel to but lower than the previous one). We can also say that the recent rise in the RSI is unusually steep because the normal angle of ascent for the RSI sub-channel is defined by Line N.

If a Line N' is drawn through Point Q, parallel to Line N, an impression of the normal RSI movement can be obtained. We can expect the RSI to drop to Line N'. Here it could reverse up in an attempt to break out of the descending channel. However, if the break-out fails, a drop below Line N' will signal the start of a modest correction down, just like it did on three previous occasions.

## PART XII

### USE OF RSI (3)

If the 14-period RSI picture becomes blurred or if you are doubting which RSI extremities to use for (DD) reference points, take a step back and look at the larger picture by switching to a 3-period RSI. The basics of the RSI interpretation are applicable here, but the picture is much less detailed in the 3-period look-back RSI. That is why it is such a great tool for a quick assessment of the market conditions and the RSI-logic associated with it.

The RSI(3) is calculated with the usual RSI equation, but is based on three periods of look-back data. The basic characteristics remain the same as the 14-period RSI, with respect to the Disproportional Displacements, so (DD) signals similar to the ones that we have studied in the RSI(14), also form in the RSI(3). With what we know about the general behavior and logic of the RSI, we should be able to detect some interesting signals in the RSI(3) as well. These signals can be overlaid on the RSI(14) and will help us define the correct channels in the RSI(14). If you want to spend minimum time performing RSI analysis, take a quick look at the RSI(3) and apply some simple rules.

Andrew Cardwell proposed the use of the 3-period RSI to pinpoint buy and sell signals with the following reasoning:

- 1) The RSI(3) hits overbought conditions at the 80-level at a certain price.
- 2) A sell signal occurs when the RSI(3) hits the 80-level, with a lower corresponding price.

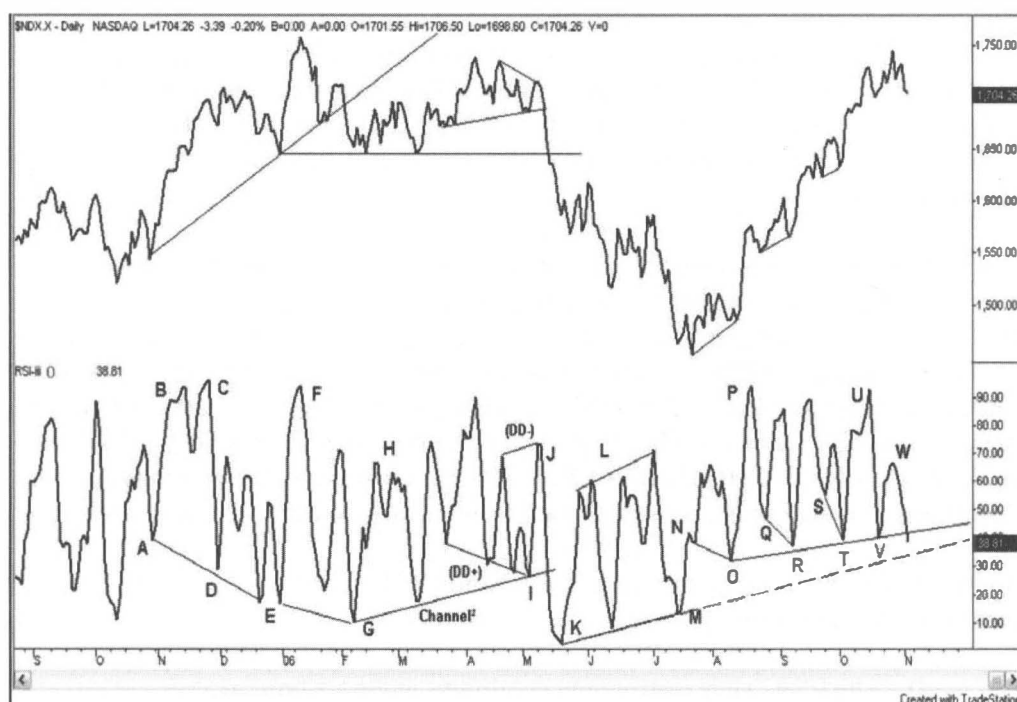
If conditions become overbought at a lower price level than the previous overbought condition, that is bearish. If the 3-period RSI becomes oversold around the 20-level, while at a higher price than on the previous occasion, that is bullish.

While this sounds logical, it is difficult to determine which RSI levels one should compare with previous occurrences *in practice*. The 3-period RSI moves so quickly that it is often difficult to find RSI extremities with identical RSI readings. As I mentioned earlier, I also have some problems with the concept of “oversold and overbought” RSI levels. Let’s have a look at the correlation of the RSI(3) with price movements.

First, I want to provide a note about the RSI settings used in the RSI(3)charts. The line displayed on the chart is the 3-period moving average of the 3-period RSI, not the actual indicator value. The 3-period moving average line of the 3-period RSI is much smoother than the underlying RSI(3) line and provides a smooth, easy-to-use RSI picture.

Here are some basic rules for the daily RSI(3) charts: Bearish territory is roughly the RSI zone from 0 to 80, while bullish territory is roughly from 20 to 100. As in the RSI(14), Disproportional Divergence in the 3-period RSI causes the formation of (DD) signals. If you see the RSI(3) make an out-of-proportion move, do not follow it; prices will move to new extremes when it reverses. Look for (DD+) and (DD-) signals using the reference points defined earlier for the RSI(14) signals and plot the channels associated

with these signals. Note: The channel boundaries will not appear to be parallel lines at times. This is not a problem, as (the most significant) lines that connect the (DD) signals reference points in the RSI are all that is necessary.



**Figure 2.42** Daily NDX with 3-period RSI

This chart provides a good example of what the RSI(3) can do. In this daily chart of the NASDAQ100, we have a nice up-down-up cycle in the price chart. Let's discuss the different points.

**Point A:** The RSI moves up from the 40-level, signaling strength. Bullish territory in the daily RSI(3) is situated between the 20- and 100-level, while bearish territory is situated in the 0- to 80-zone. From Point A to Point I, the RSI(3) stays above 20 (as the rally develops). From Point K to Point M, the market moves through a bearish phase, and the RSI(3) reaches a value below 5 at Point K. From Point O to Point W, the RSI(3) is back in bullish territory.

**Point B:** The RSI(3) rises above 90 as price rallies.

**Point C:** Just prior to this point, the RSI drops significantly while price hardly moves. This is the Disproportional Divergence phenomenon that was observed in the 14-period RSI. As the RSI reverses up after the dip, price surges to a new high at Point C. The RSI(3) value is well over 90.

**Point D:** The RSI(3) makes another out-of-proportion drop after Point C, while price moves modestly lower. Again, as the RSI reverses up at Point D, it is well above the

20-level and price resumes the uptrend. The RSI drop between Point A and Point D results in a (DD+) signal. Past Point D, the RSI struggles at the 70-level, which is a sign of weakness.

**Point E:** After the RSI fails to rise above 80, price corrects downward modestly and the RSI drops to Point E, a new RSI low near the 20-level. There is a (DD+) along Line A - D - E, connecting RSI lows that correspond with higher lows in price.

**Point F:** After the (DD+) signal at Point E, the RSI is propelled into bullish territory to values well above 90. Price reaches a new high. The RSI drop from Point F takes the RSI straight back to the 20-level, where it reverses up. The next RSI top, between Point F and Point G, fails to reach the 80-level; a sign of weakness.

**Point G:** This RSI low is in bearish territory. Price consolidates as the rally starts to flatten out. There is a (DD+) signal between Point E and Point G, but only because price at E and G are identical. Also, Point G is below the 20-level, which leaves some doubt about the effect of this (DD+).

**Point H:** Disappointing action after the (DD+) signal at Point G. The Disproportional Divergence is working the other way now. The RSI value rises to 70, but prices hardly follow the up-move.

**Point I:** The series of RSI lows that occur prior to Point I are a (DD+), as they correspond to higher lows in price. The Line G - I is the equivalent of the Channel<sup>2</sup> used in the RSI(14) analysis. This means that as long as the RSI manages to stay above the Line G - I, we should see price rally to higher highs.

**Point J:** The rally fails. The RSI does not reach the 80-level; it reverses downward. Price action is so weak that only a lower high is reached. In fact, the formation of a (DD-) signal at Point J conflicts with the previous RSI peak.

**Point K:** As the RSI drops from Point J, it breaks below Line G-I, invalidating the previous (DD+) entering bearish territory. Prices break below the consolidation support line. After the topping action seen previously, the market enters a bearish phase.

**Point L:** The RSI is unable to rise over 80, remaining in bearish territory. The line at Point L defines a (DD-) signal, as it connects higher tops in the RSI that correspond to lower highs in price. Following this (DD-), prices fall to new lows.

**Point M:** The RSI is still in bearish territory below the 20-level. A positive divergence is building. We know that this can lead to a trend reversal up, if it succeeds in pushing the RSI into bullish territory. The Line K-M is the lower boundary of an ascending channel. If another (DD-) forms past Point M, the RSI will have to drop below this Line K-M for the (DD-) to take full effect.

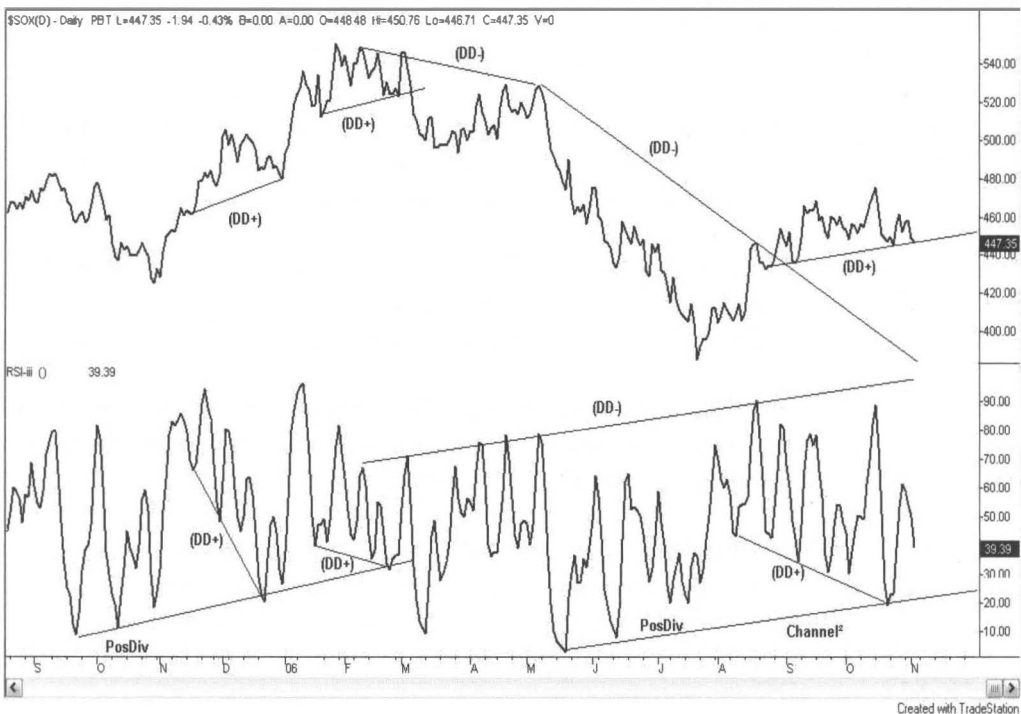
**Points N and O:** Within the channel defined by the Line L and its (nearly) parallel Line K-M, a (DD+) signal is formed at Points N-O. At Point O, the RSI remains well above 20 and the rally resumes.

**Points P and U:** All of the RSI peaks in this period reach the 90-level with ease. The market is in bullish territory.

**Points O-R-T-V:** This line defines the lower boundary of an ascending channel, which is well above the 20-level. Within this channel, we have a series of (DD+) signals at Point N and Point O, at Point Q-R and at Point S-T. This corresponds with what we learned about the RSI(14) in an uptrend and the importance of its Channel<sup>2</sup>. The rally continues as long as the RSI stays within its ascending channel.

**Point W:** Oops! The RSI fails to reach the 70-level, although price reaches a higher high. A strong negative divergence is building here. The question now is whether or not the RSI is going to break below the Line O-R-T-V. If it does, we can expect it to reverse up before reaching the 20-level, remaining in bullish territory. It will also be interesting to see whether or not the RSI breaks below the extended Line K-M, as this could be considered the lower boundary of an ascending Channel<sup>2</sup>, with the upper boundary defined by Line J-P.

If the RSI reverses up from this hypothetical Point X, we will see the formation of a (DD+) in relation to one of the previous RSI lows (possibly Point V or even Point O). However, if the RSI drop is deep, the following rebound may result in a (DD-) signal. This would mean a possible repeat of the scenario at Point J.





**Figures 2.43 and 2.44** offer a good example of how the 3-period and 14-period RSI pictures, covering the same time period, can be correlated. Both are daily charts of the Semi-Conductor Index (SOX), covering about 18 months of data. The picture in the 3-period RSI chart is simple. From November 2005 to February 2006, the RSI is above 20 and forms (DD+) signals within its ascending channel.

In March 2006, following the (DD+) signal, the RSI breaks down from its Channel<sup>2</sup>, invalidating the (DD+) signal drop below the 20-level.

The RSI rebound in March and April 2006 stalls at the 80-level in bearish territory, while the RSI tops define a (DD-) signal, followed by a steep price drop in May 2006.

In June and July 2006, a positive divergence starts to define the lower boundary of an ascending Channel<sup>2</sup>. In mid-August 2006, the RSI peaks at the 90-level in bullish territory and the following RSI decline results in the formation of a string of (DD+) signals. This illustrates a reversal signal within the ascending Channel<sup>2</sup>, which was defined by the (DD-) signal at its start. The positive divergence pushed the RSI into bullish territory. Also note that the most recent RSI low in late October 2006 reached the 20-level. The RSI is now dropping back from the 60-level. Will it manage to stay above 20 or will it break below the Channel<sup>2</sup> bottom?

Figures 2.43 and 2.44 illustrate the correlation between the 3-period RSI (Figure 2.43) and the 14-period RSI (Figure 2.44). Note that the RSI(3) gives an early indication of the start of the positive divergence in October 2005 and in June 2006. The RSI(3) drop in March 2006 points to possible trouble ahead, as it follows an initial (DD-) signal and goes well below the 20-level, while the RSI(14) picture shows the RSI merely leveling-off around the 40-level.

The RSI(14) chart provides a better picture of the larger degree Channel<sup>3</sup>, (a descending channel with its upper boundary around the 60-level). If the most recent (DD+) signal is to take effect, the 14-period RSI needs to break out of this descending channel. This means that the RSI must stay within the new ascending channel defined by the consecutive (DD-) reference points in February through May of 2006. Within the framework of this potential new ascending channel, the recent (DD+) signal can be interpreted as a “reversal” signal because this channel, at its origin, was defined by a (DD-) signal. In the 3-period RSI, this means that the RSI should not break below the Channel<sup>2</sup> lower boundary, situated near the 20-level. Further indecision will also cause the 14-period RSI to zero-in on the 50-level.

**PART XIII**

**PRACTICE**

Let’s work through some examples and apply what we have learned about the Relative Strength Index so far.



**Figure 2.45** Weekly Dow Jones Utilities Index

Up to Point A, the RSI moves within a descending channel, reaching bearish territory, while price drops considerably. The ascending channel that starts at Point A is defined

by a (DD-) signal at its upper boundary. In Quarter 2 of 2004, the first (DD+) signal forms in this channel, well above the 40-level. This heralds the beginning of a bull market as the RSI stays above the lower boundary of its ascending channel. The RSI value rises to 85, which is quite impressive in this larger weekly time frame.

Past the RSI peak, we notice the formation of a negative Price/RSI divergence as the market moves into 2005. As is so often the case, this divergence, at the highs of the RSI, is accompanied by a (DD+) signal forming at the RSI lows. The negative divergence causes the RSI to violate the channel bottom, which is an early indication that a new descending channel may be forming. But the indicator is well inside bullish territory and when the (DD+) takes effect, price rallies to a higher high while the RSI hits the 85-level again. After hitting this extreme 85-level a second time, the RSI drops below its ascending channel at Point X. As discussed, this does not imply the rally is over, as the RSI remains high in bullish territory. It does indicate that the rally is losing steam and the RSI is likely to form a (DD+) signal with a less ambitious price target. In other words, the slope of the rally is becoming less steep.

Past Point X, we see a steep out-of-proportion drop in the RSI. We know we should not follow the RSI here, as a reversal up will see prices move higher. At Point B, the RSI finally reverses up around the 50-level, forming a new (DD+), effectively defining the lower boundary of a new descending channel. Through Point B, we can plot a line parallel to the Line A-X, which we can use as reference for the validity of this new (DD+) signal. For this (DD+) to take full effect, the RSI needs to stay above this line. This should confirm the start of a new ascending channel, parallel to but lower than the previous channel defined by the Line A-X.

We also know what would happen if the RSI were to drop below this line through Point B. The most recent (DD+) signal would be invalid and the RSI would not escape from its descending channel; it should, in order to avoid ending up in bearish territory. Past Point B, the RSI does not succeed in rising above 60 and drops below the potential ascending channel reference line, indicating that the RSI is continuing its course in the descending channel.

The RSI reverses up at Point C, bouncing off the lower boundary of its descending channel, as anticipated. Point C is situated at the 40-level, well within bullish territory. Again, we can draw a line through Point C parallel to the previous Channel Line A-X and the potential channel line through Point B. This time the RSI stays well above the reference line, climbing steeply within a sub-channel (not shown), breaking above the 60-level as price reaches a new high.

By the end of this chart, the RSI is in bullish territory and the question is: Will the RSI break out from its descending channel or is there going to be another cycle down? The bull market is not in danger as long as the RSI remains in its ascending channel. If the RSI reverses down now, we can expect it to reverse up from the reference line through Point C, forming a new (DD+) signal at the 50-level in the process. This scenario means that the RSI is traveling in its ascending channel, possibly rising to the 85-level again, while prices reach higher highs.

The lines in the price chart are support lines that correspond to the (DD+) reference points in the RSI. Please note that the support line corresponding to the (DD+) signal at Point C is less steep than the support line at Point B.

In this RSI picture, a line (through Point A and Point C) is missing - one that would define the lower boundary of the larger degree Channel<sup>3</sup>, which is an ascending Channel<sup>3</sup>. In this particular channel, we see the formation of a (DD+) signal at Point C. This larger picture is clearly bullish, as long as the RSI stays above the imaginary Line A-C. A line could be drawn parallel to Line A-C, (to see how it fits the picture at the upper boundary of this Channel<sup>3</sup>).



**Figure 2.46** Weekly DJU

Within this larger degree ascending Channel<sup>3</sup>, the Channel A-X (up) and the Channel B-C (down) can be interpreted as an up-down RSI cycle. In this scenario, the down-cycle, including the negative Price/RSI divergence, has not damaged the uptrend.

Figure 2.46 shows a possible interpretation of the bigger picture. There is a giant (DD+) signal, (the lower edge of Channel<sup>2</sup>), within its larger ascending Channel<sup>3</sup>. The lower boundary of this Channel<sup>3</sup> is the validity reference line for the giant (DD+).



**Figure 2.47** Daily Oil Index

The 9-period simple moving average and 45-period exponential moving average are added in the RSI chart. The crossing up of these moving averages marks the points where the uptrend resumes. I find the moving averages useful in the daily and weekly RSI charts, as their crossing up or down often confirms and coincides with relevant reference points.

In this example, the circled moving average crossing point marks the best RSI extremity to define the (DD+). At the reversal up of the RSI in mid-April 2005, there were several possibilities to draw the (DD+) line through various RSI extremities. In such cases, it is recommended to take the RSI reference point on or nearest the crossing point of the moving averages. Failing this, a look at the 3-period RSI chart for the same time frame could provide clarity as to which RSI extremities qualify best for the (DD+).

We will need to see the RSI rise into the next slice as the rally continues. In this case, it is clear that the (DD+) reference line is a good choice because its parallel line proves to be a good reference line for a series of (DD+) signals from June through October 2005. Also note that the (DD+) formed on this line by the end of June, as the RSI reversed up well within bullish territory, is a FAST (DD+).

In the price chart, the (DD+) line serves as a support line and helps check the validity of the (DD+) signal. In this case, price breaks below this support line in May 2005, but this

did not invalidate the (DD+) signal because the RSI remained above its Channel<sup>2</sup> reference line, which runs parallel to a previous channel (not shown).

In October 2005, the RSI drops below its Channel<sup>2</sup> and below the 40-level after a two-month negative divergence. As the RSI reaches the underside of its previous ascending channel, it is clear that there is a risk of a (DD-) signal forming as the RSI reaches 50, while price has not exceeded 1000, the Lighthouse level of a potential (DD-).

# CHAPTER THREE

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## RSI TIME FRAME CORRELATION



## PART I

### INTRODUCTION

So far, we have learned how to detect, interpret and check the validity of (DD) signals. We have studied the “RSI logic” as it moves inside its multiple channels, which allows us to draw conclusions about the state of the market in one particular time frame. Now, it is time to examine the correlation between different RSI pictures taken from various time frames.

As we have discussed, the RSI picture changes drastically as you zoom in on it by switching to smaller time frames. In fact, there are thousands of different RSI pictures and each one represents the same price action. Imagine using a computer program that would allow you to display a weekly chart of price *and* the RSI, and allow you to zoom in on the most recent price action by reducing the chart’s time frame by 1-minute increments. Each picture would be slightly different than the previous one and the RSI would come to life, snaking in tighter patterns, appearing animated.

Each of the many RSI pictures is a true representation of price action, after it has been through the RSI equation. Needless to say, it would be impossible to examine all of the pictures. We will choose a few that will help us understand the price reality of the moment. I propose that we use the weekly-daily-hourly combination for longer-term analysis and the daily-hourly-15 minute combination for the shorter-term analysis. The choice of time frames is arbitrary; any time frame that provides a clear picture of the RSI channels is worth close examination. I have experimented with Fibonacci-related time frames, hoping to find an interesting correlation in their RSI pictures, but the results do not indicate that any particular set of time frames is better than another.

What makes the hourly RSI pictures so different from the daily chart? First, there is the difference in the look-back period, which is 14 *days* in the daily time frame and 14 *hours* in the hourly time frame. Also, the RSI is calculated based on *closing* prices for each of the 14 periods. Imagine the Dow Index is in negative territory all day, before a rally in the last hour, ensuring that the closing is unchanged. In the daily RSI chart, the result is a short, one-day, nearly horizontal line; the hourly RSI shows five periods closing in the red and one period closing in the green.

The RSI reverses upward at some point near the close of the session. This reversal up may have been a (DD+) in the hourly chart, while in the daily chart, the only bullish indication may be the long shadow, or “wick” in the candlestick, representing the price action of that day. Still, both the daily and hourly RSI chart, however different, tell us something fundamental about the recent price action. In the 15-minute chart, a positive divergence may have pushed the RSI into bullish territory early in the session, and a (DD+) signal may have developed toward the end of the trading day. All of these RSI pictures are different (but true) statements about the market action.

In this respect, Time Frame Correlation (TFC) adds an extra dimension to the RSI analysis because it can be used to examine and correlate multiple true statements about the same price reality. Using our knowledge of the underlying RSI logic, it must be possible for us to find a link between the RSI pictures in the various time frames. This should improve our ability to determine plausible future scenarios.

It is impossible to consider every RSI combination that may result from various RSI pictures in multiple time frames. But once the basics are understood, you will be able to find a meaningful correlation. In my opinion, what was absent from the RSI rules as defined by Welles Wilder and Andrew Cardwell is the dimension of Time Frame Correlation.

Any statement relating to a particular RSI situation and its consequences should at least define the time frame from which the RSI study is taken. If the Time Frame Correlation element is missing, any statement about the interpretation of an RSI pattern becomes meaningless, because it may be contradicted by the RSI picture from a different time frame. We will study how to interpret contradictory RSI signals when they occur in the same time frame and in different time frames.

There is no single, unique time frame that will produce the perfect RSI picture and predict what will happen in the market. The time frame that produces a clear picture of the RSI channels is a *relevant time frame*. This means that the actions of the traders in that particular time frame determine the direction of the market.

John Hayden calls this “the force,” in an attempt to add some degree of specification to the general RSI rules as defined by Andrew Cardwell. In other words, analysts should attempt to determine which time frame is “in charge” and go with the signals originating from that time frame in order to avoid trading against the force. Unfortunately, Hayden’s method for isolating the market-leading time frame is very vague and is neither based on, nor applicable to the RSI picture. My conclusion is that 1) the analysis of three RSI pictures results in a more consistent determination about the market’s direction and 2) any time frame that produces a clear RSI channel picture is relevant.

## PART II

### **BASICS OF TIME FRAME CORRELATION**

At any time, market direction is determined by the combined actions of all participants with their different objectives, intentions and strategies. Sometimes the short-term day-traders control the market, then the swing-traders may step in, and some time later, they all may be swept away by a wave of orders originating from long-term investors. This means that decisions based on signals from one particular time frame will only get you so far.

Here, I return to the concept of *trend*, and the questions: “Is there only one real trend?” Earlier, we came to the conclusion that the concepts of oversold/overbought market conditions have no absolute meaning. The trend should be defined in the same way depending upon the time frame from which it is taken. It is possible to have an uptrend in the hourly chart and a downtrend in the daily chart, while the weekly chart shows an uptrend and the monthly chart shows a downtrend.

It is important to understand the concept of *trend magnitude*. Trends originating from the longer-term traders, who base their decisions on weekly or monthly charts, are of a different magnitude than trends originating from short-term traders who base their decisions on hourly charts. These traders have different objectives, different portfolios and very different stop-loss limits.

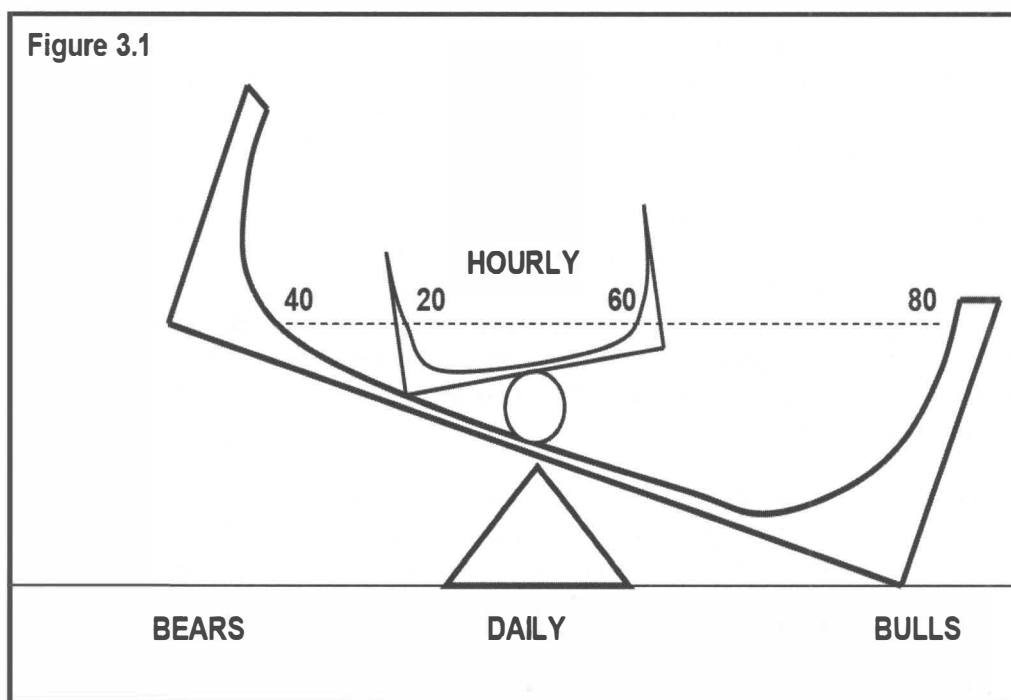
In the RSI, this concept is reflected in price targets; a (DD+) signal taken from the weekly chart will be much higher than the price targets taken from an hourly chart. A trend of the weekly magnitude is much more powerful than a trend of the hourly magnitude. If the latter is referred to as a “wave,” then the former should be called the “tide.” When price approaches its target in the weekly chart [after a (DD+)], there will be a series of (DD+) signals in the daily charts that reach their consecutive, but more modest, price targets.

There must be a series of successful (DD+) signals in the hourly chart if the weekly target is ever to be reached. This is the basis of Time Frame Correlation: Determine what occurs in the smaller time frames that could affect the signals in the larger time frames. Or, find out whether the larger time frame signals are working for or against you.

Here is another way of looking at the concept of Time Frame Correlation: When an uptrend in the daily chart comes to an end, a sizeable price decline, followed by a shallow retracement up, will cause the formation of the very first (DD-), thus telling us that the trend has changed. As a result, our portfolio takes a hit as prices initially decline. Why not check the hourly time frame for (DD-) signals? This smaller specimen of the (DD-) requires a less severe formation of the price decline-and-rebound. Any price decline, big or small, starts with a modest price slide in the smaller time frames, which eventually spills over into the larger time frames.

One should also look for conflicting signals in the smaller time frames. However, in the very small time frames, you will find that the usual market “background noise” causes a string of contradictory signals that lead nowhere. I recommend using the daily-hourly-15 minute combination for short-term analyses, but the RSI rules apply just as well to 5-minute and 3-minute charts. Please note that this means that in Time Frame Correlation, we will be confronted with situations where contradictory signals are detected in the various time frames. How do we correlate these signals?

Recall the earlier illustration of the skater’s half-pipe. Figure 3.1 provides a graphic representation of Time Frame Correlation logic involving two different time frames (the daily and hourly). The larger daily half-pipe is in the bullish mode, showing readings ranging from 40 to 80. However, the smaller hourly half-pipe is tilted the other way with RSI readings ranging from 20 to 60. Since this time frame is in bearish territory, it may cause the larger daily half-pipe to shift its balance to the bearish side.



### **PART III**

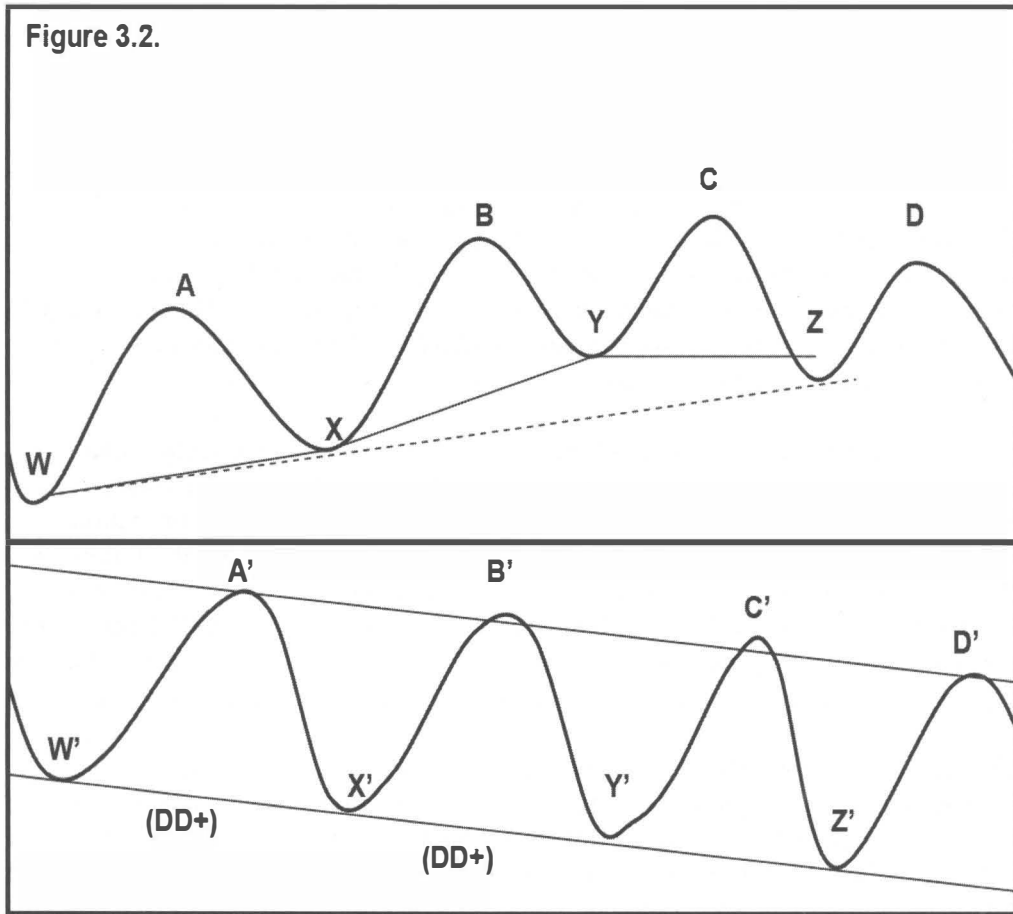
#### **FAILURE OF (DD) SIGNALS**

What is the significance of a (DD) signal's failure to reach its price target? Andrew Cardwell believes that price target failures, even if the target is only missed by a few points, are just as relevant as the signals themselves, because they indicate a weakening or reversing trend. In my experience, the negative impact of (DD) signal failures should not be overestimated. Remember, in order for a (DD+) to be formed, a shallow price retracement down is required.

One could argue that in an uptrend, the absence of (DD+) signals (other than those caused by negative divergence), is a sign of strength because there is a lack of downward retracements. The shallow retracement in an uptrend, [causing the formation of a (DD+) signal in the daily time frame] may be deep enough to cause the failure of a (DD+) in the hourly time frame. It may even cause a (DD-) in the hourly time frame. A (DD) failure in the weekly time frame is more significant than a (DD) failure in the hourly time frame, because the down retracement required for the formation of a new (DD+) in the weekly time frame is large enough to actually hurt your portfolio.

The time allotted for a (DD) signal to hit its price target is not clear. After a (DD+), it is possible for prices to go sideways for some time, without reaching the projected price target. When is it time to consider this (DD+) signal as a failure? When a new (DD+) is formed? Is the new (DD+) bound to fail as well? If not, then why was the alleged failure of the previous (DD+) so important?

Price targets calculated from diverse (DD) reference points are best viewed as indicators of the direction and strength of the forces acting on the trend. At any time, as we browse through the RSI charts in the different time frames of one particular equity, we will find dozens of co-existing (DD) signals. Many of the (DD) signals will be contradictory and will inevitably fail to reach their targets.



**Figure 3.2** depicts an uptrend in price and its corresponding RSI chart. What can we say about the failing (DD+) signal at Point C? [Remember, in the context of this discussion, “failing” means that the calculated price target for that (DD+) was not reached]. There is an initial (DD+) in reference to Points W-X. After price reaches the projected target at Point B, a second (DD+) forms in reference to Points X-Y. The price support line for this (DD+) shows that the uptrend is becoming steeper, but at Point C, price reverses downward before reaching its target. At what point can we say that this (DD+) failed?

The term “failure” is not appropriate to describe this RSI behavior, because it implies that something irreversible has happened. This is not the case. At Point Z, price drops below the Lighthouse level Y, so there is no (DD+) at Points Y-Z, because Price Z is lower than Price Y. In the RSI chart, we see that the RSI reverses up at Point Z', from the lower boundary of its descending channel, where a series of (DD+) had been building. There can be no (DD+) at Points Y'-Z' but what about Points X'-Z' or even W'-Z'? Price Z is higher than Prices X and W, while the RSI is lower at Point Z' than at Points W' and X'. So, while no (DD+) exists at Points Y'-Z', we could consider a (DD+) to be valid at Points W'-Z'.

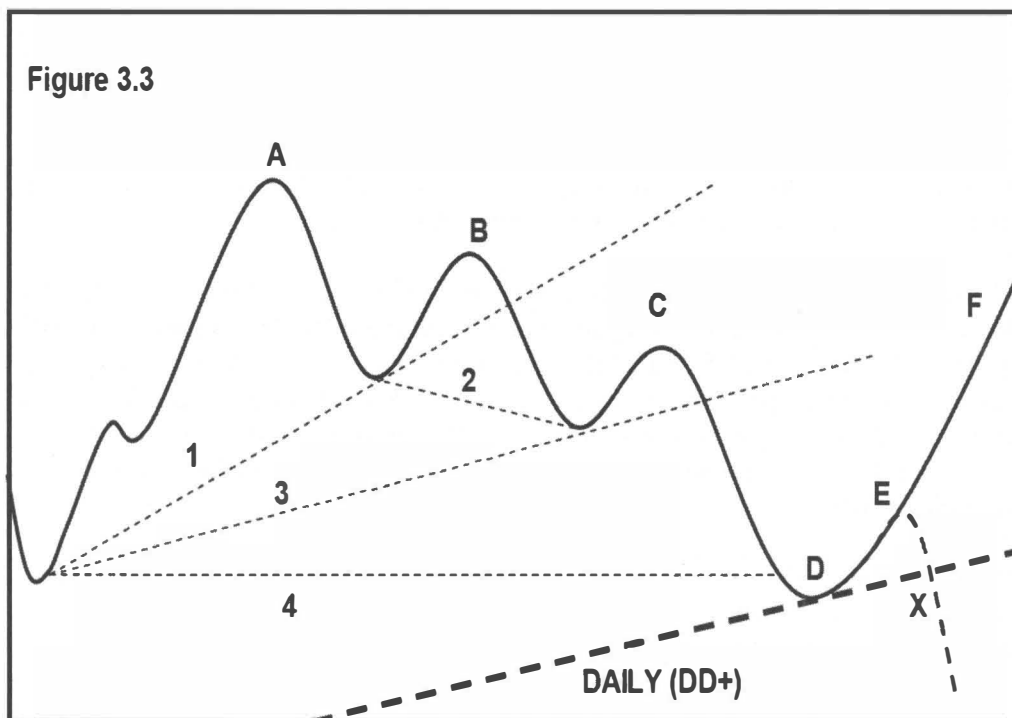
In the related Fibonacci method, when a price retracement down covers more than 100% of the last price advance, what do we look for next? This is the case at Point Z, in relation to the price rise from Point Y to C. Looking at the broader picture, we can measure the ratio of the latest price decline against the larger price advance. In this case, the price decline from Point C to Z is only about 50% of the price advance from Point W to C. In this respect, the price decline into Point Z is still shallow and the (DD+) in reference to Points W' and Z' is still valid.

We need to check the level where the RSI reverses at Point Z'. If it is well below the 40-level, we know that a (DD-) signal could form at Point D. The odd thing about the (DD+) at Points W' and Z' is that its price target is higher than the missed target at Point C, because the price difference between Point W and Point Z is much larger than the price change from Point X to Y. As a result, the failure of the (DD+) signal at Point C did not damage the uptrend. It was a preamble to the formation of another (DD+) in the broader picture.

This illustration points to a flaw in the Fibonacci method. If you take a step back each time a price retracement exceeds 100% of the previous price change, when do you decide to stop regressing and consider the trend to have reversed? Obviously, as was the case for the old RSI rules, the missing element is the extra dimension added by Time Frame Correlation. In the Fibonacci method, this can be achieved by using clusters of Fibonacci reference lines, calculated from a multitude of price reference points in various time frames.

In our example, the failure of the (DD+) signal is not significant. However, because of it, the RSI stays within its descending channel. We know that this will eventually push the RSI into bearish territory, and it does, at Point D'. The RSI fails to break out and drops deeper into bearish territory. In price, this results in a Head & Shoulder formation. Also, since Price D is lower than Price C, we may have the first (DD-) at Point D' (not shown). This would be more significant than the failure of the (DD+) at Point C. The alternative scenario is that the RSI breaks out at Point D', while price stays above the extended support line W-Z, validating the (DD+) signal at Points W'-Z'.

In this scenario, the formation of a (DD-) signal and the further decline of the RSI could have been avoided and prices could have rallied to a new high, possibly to the projected target of the (DD+) at Points W'-Z'. This example clarifies why I do not believe that (DD) failures are very significant. I believe that the appearance of a conflicting (DD) signal is more important, as is the nature of the most recent signal in the *next larger* time frame.



**Figure 3.3** illustrates the previous point. In this hourly price chart (the RSI chart is not shown), suppose we have a (DD+) along Line 1, but at Point B, price declines and drops below the (DD+) support line without hitting the (DD+) price target. This price decline results in a new, less ambitious (DD+) signal along Line 3. This (DD+) signal fails as price does not exceed price level B.

In order to form a (DD+) in the daily chart, the price decline into Point D is required. Prices rally to their daily (DD+) price target, exceeding price level A. In this example, the potential contradictory signal in the hourly RSI is more important than the failure of the (DD+) signals to reach their targets. The price decline to Point D and subsequent rebound to Point E may have caused the formation of a (DD-) in the hourly RSI chart. If this takes effect, it may cause price to break below the daily (DD+) support line at Point X.

One can use the same reasoning for the failure of the hourly (DD+) at Point C. At this point, we can look at the 15-minute chart, and we may find that the price decline from Point B and the shallow rebound into Point C causes a (DD-). This is the object of the Time Frame Correlation study.

A last glance at Figure 3.3: Did the initial hourly (DD+) along Line 1 really fail? After all, the larger daily (DD+) may push price well above its projected price target. In my experience, (DD) price targets are best viewed not as make-or-break reference levels. Rather, one should view them as vectors that may act with or against the larger trend, which in turn is the result of the combined actions of many vectors in various time frames. If we detect a vector acting against the next larger vector, it needs to be

monitored, in order to determine which one will prevail. The effects of the smaller vector may spill over into the larger time frames, much like the imaginary hourly (DD-) (at Points C-E in the previous example) may prevent the daily (DD+) from taking effect.



**Figure 3.4** Daily LRCX Chart

This chart more clearly exemplifies our discussion. There is a (DD+) signal at Point C, well above 40. This (DD+) signal remains valid as long as the RSI stays above the Line A-C-D. However, the arrow marks the point where a (DD-) appeared in the hourly chart after the hourly (DD+) failed to reach its price target.



Figure 3.5. Hourly LRCX.

If this hourly (DD-) invalidates the daily (DD+), the daily RSI value will drop and (most likely) build another (DD+) at a lower level. Any way you look at it, if this drop causes another (DD-) signal to form in the hourly time frame, this scenario may be repeated. Sooner or later, the hourly (DD-) *must* be invalidated by the daily (DD+) if the rally is to continue. If this fails, a series of hourly (DD-) signals will eventually cause the formation of a (DD-) in the daily time frame. The (DD+) signal at Point C will not reach its price target unless it invalidates the hourly (DD-), but new (DD+) signals may form until the Lighthouse price level at \$45 is broken.

## **PART IV**

### **TIME FRAME CORRELATION: ZOOMING IN AND ZOOMING OUT**

By referring to Figures 3.6 and 3.7, we can discuss Time Frame Correlation from different viewpoints:

1. The short-term trader studying the 15-minute chart wonders how far the price retracement down would carry if the RSI breaks downward from its ascending channel.
2. The long-term trader studying the daily chart looks for early signs and wonders whether the RSI will break down from its ascending channel, offering an opportunity to sell.

Let's examine the perspective of the short-term trader. She is aware that the RSI in the 15-minute chart did not succeed in breaking above 70. This resulted in an RSI Squeeze, causing the RSI to drop below its ascending channel as expected. This signaled the start of a price retracement downward. A moderate rebound in price, following the initial decline, saw the RSI pop up to form a (DD-) sell signal at Points y-z. Our trader now wonders what to expect if the RSI continues its decline past Point x.

She switches her analysis to the 60-minute time frame and finds that the RSI is approaching the lower boundary of its ascending channel. Additionally, after the (DD+) signal at Points A-B, the RSI is unable to break out above the Line A'-B', indicating market weakness. It is not surprising that the RSI is unable to rise above 70 in the 15-minute chart. Our trader anticipates a price retracement in the 60-minute magnitude as it becomes clear that the RSI drop in the 15-minute chart is going to trigger the RSI to cascade downward in the 60-minute time frame.

Furthermore, she finds similar signs of weakness, in the daily chart, with the RSI unable to rise into the next up-segment of the chart. This means that the (DD+) signal that formed in the daily chart at Points A-B is failing. If the RSI breaks below its channel support line at Point x, this would signal the start of a price correction down in the daily magnitude.

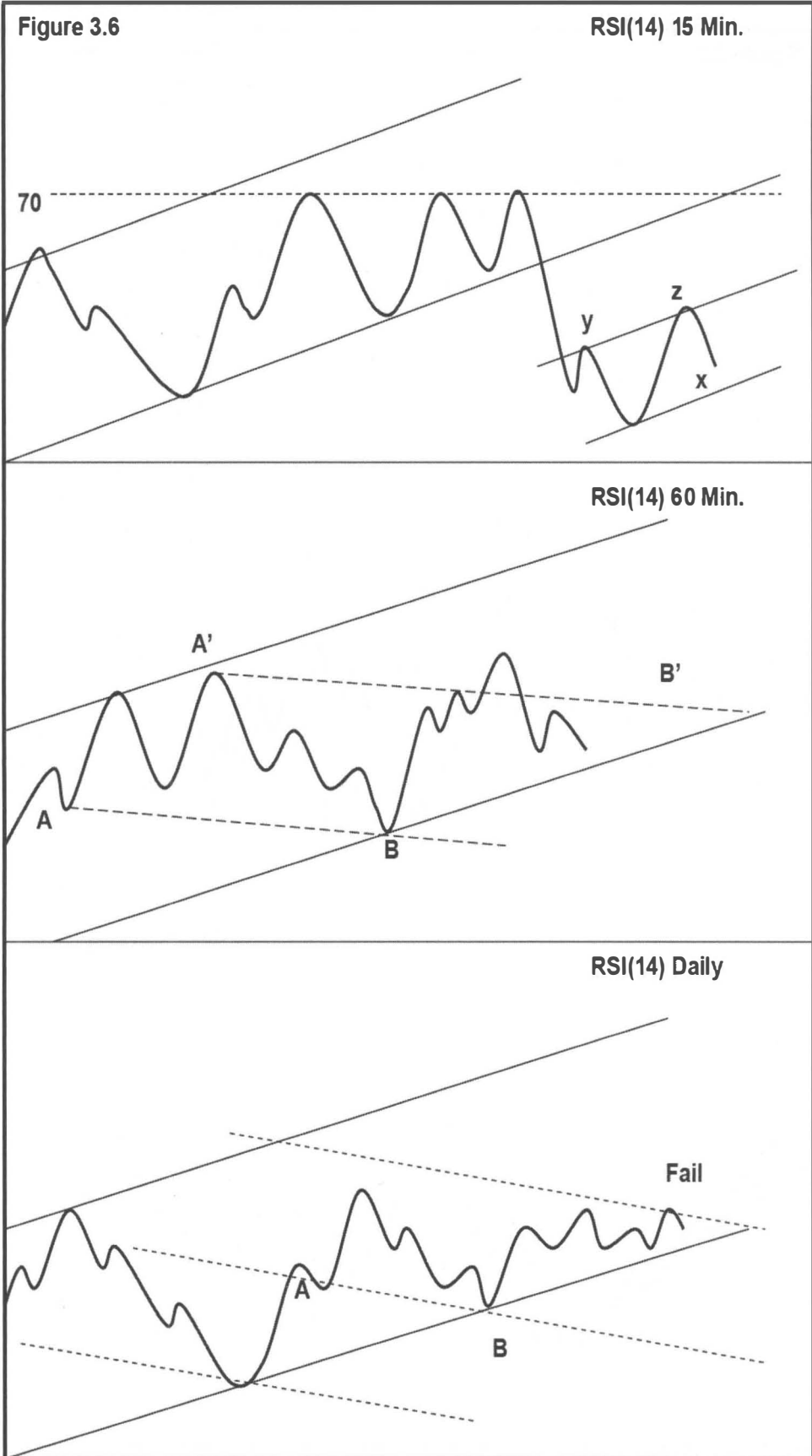
Our trader decides to short the market whenever the RSI falls below Point x in the 15-minute chart, anticipating that this will trigger an RSI break-down in the 60-minute and daily time frames. She considers that this scenario would be invalidated if the RSI in the 15-minute chart were to reverse back up to break out from its descending channel and rise above the 70-level. In such a case, the RSI in the larger time frames should bounce up from its channel support line.

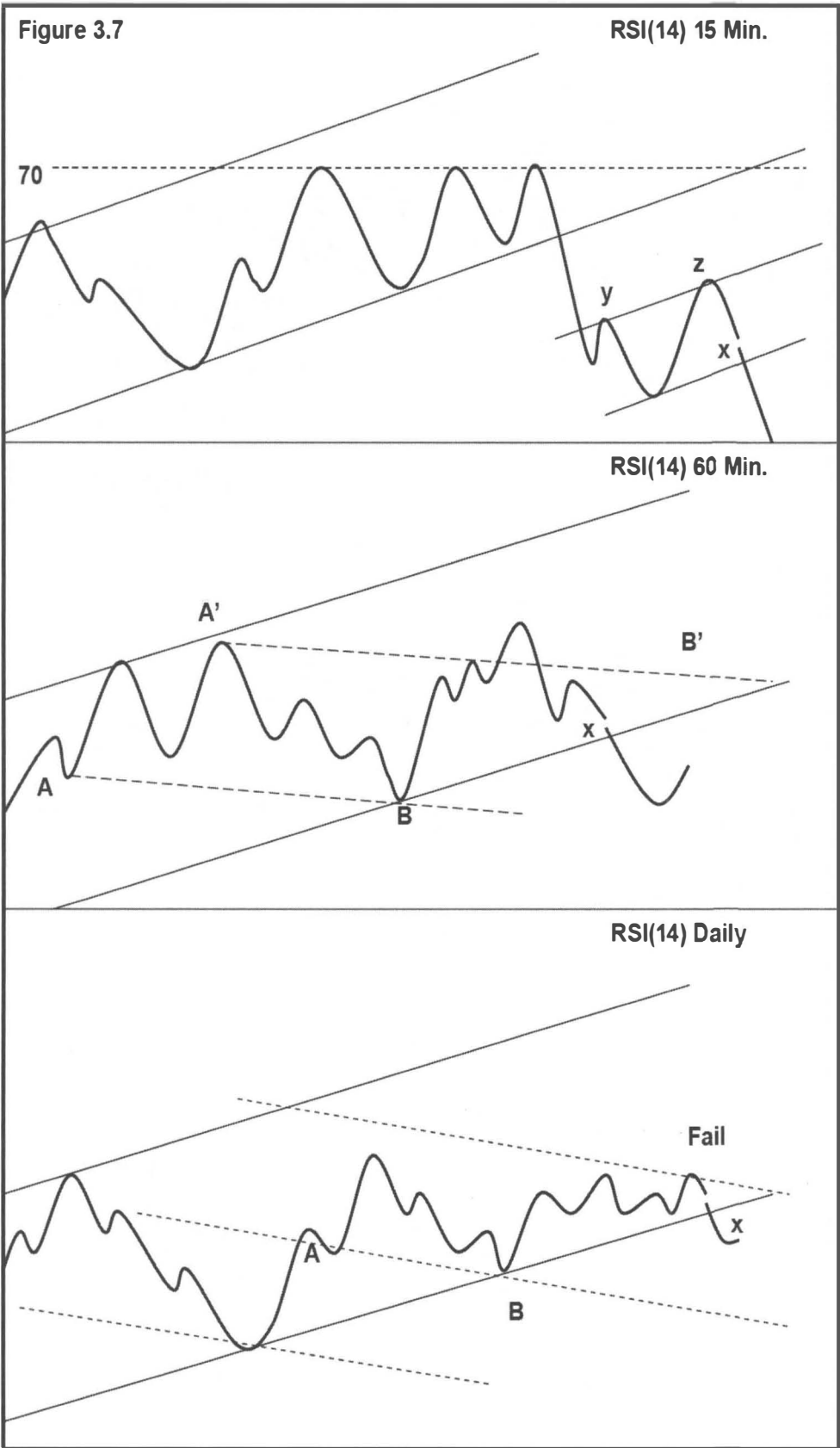
She also considers that the price projection target calculated from the (DD-) signal in the 15-minute chart will probably be exceeded, if the RSI values from larger time

frames cascade lower as anticipated. Figure 3.7 shows a possible follow-on scenario. The 15-minute RSI has declined further within its descending channel, forming new (DD-) signals on the way down. In the 60-minute chart, the RSI has broken below its channel, forming a (DD-) signal with a projected price target far below the original target in the 15-minute chart. The daily chart shows the RSI breaking below its ascending channel, marking the start of a price retracement down of the daily magnitude.

The longer-term trader, finding that the daily RSI is approaching the lower boundary of its channel, would like an early indication of the RSI breaking downward. He turns to the hourly and 15-minute charts, checking to see whether any contrary signals that the larger trend is unable to override have appeared.

Let's begin with an uptrend: The scenario to the start of the price decline in the daily time frame is the RSI weakness and, in the 15-minute time frame, the formation of an initial (DD-). Let's examine how to interpret identical and conflicting signals in various time frames.





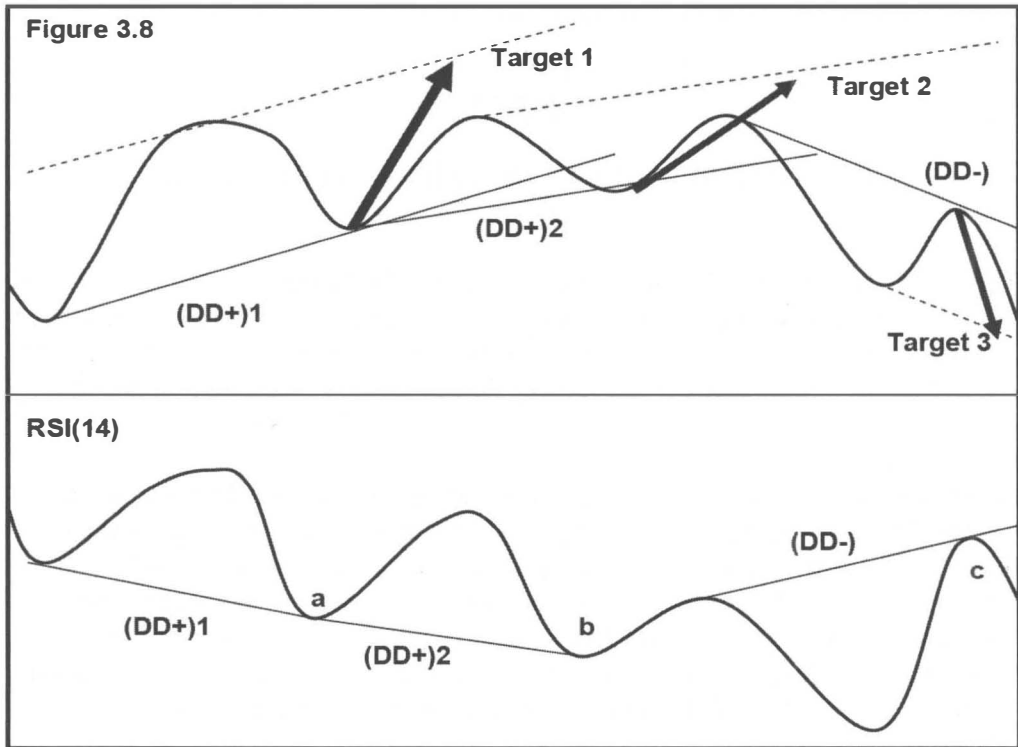
## **PART V**

### **IDENTICAL SIGNALS IN DIFFERENT TIME FRAMES**

The occurrence of coinciding identical signals in the different time frames is easy to recognize, as signals in various time frames align and reinforce each other. An uptrend will be characterized by a series of (DD+) signals within an ascending RSI Channel<sup>2</sup>. As long as this picture exists in the weekly, daily and hourly time frames, the uptrend will be safe.

When these conditions exist, the price target calculated from the (DD+) signal in the weekly chart will be the most ambitious. In the daily time frame, each successive (DD+) signal will have a more modest price target, but as time passes, these targets add up to the greater weekly price target. The same goes for the hourly stream of (DD+) signals and their respective price targets. We can use an improvised vector representation to help us visualize how the trend force is acting upon price in one time frame picture, and how this could be represented in the triple time frame picture.

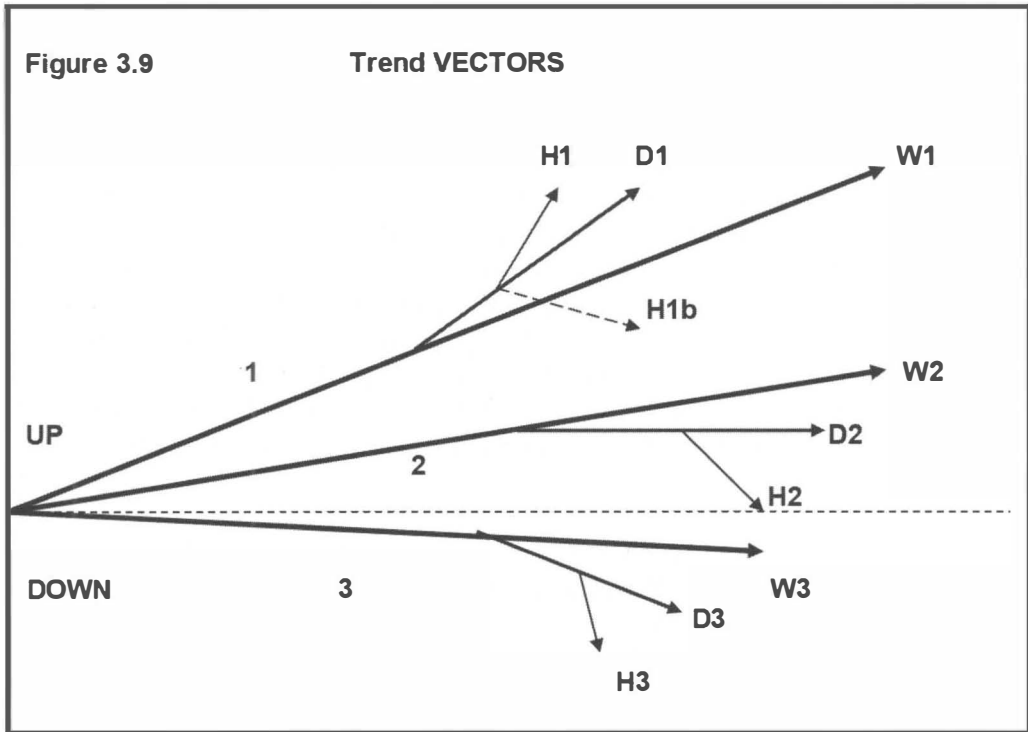
Let's say that the direction (angle) of an uptrend vector coincides with 1) the resultant of the angle of the price support line for the (DD+) signal and 2) the change in price required to hit the price target for that particular (DD+). A (DD+) is represented by a strong trend vector up, with an ambitious price target and a steep price support line, as shown in Figure 3.8.



As the RSI reverses up at Point a, forming a (DD+) signal, the associated Price Target 1 can be calculated, [which, in the price chart, is situated on the line parallel to the (DD+) support line]. The vector ending at Target 1 symbolizes the imaginary force pulling prices higher. Because the price target is not reached and the (DD+) 1 is invalidated, the RSI drops to Point b, where it reverses upward again. At Point b, a second (DD+) is formed, but this time, the resulting support line in price is less steep and the price target is less ambitious than in the previous (DD+).

The trend vector ending with Target 2 symbolizes the force pulling on price, and we see that this force is reduced in comparison to the force resulting from the first (DD+) signal. As Price Target 2 is not reached and the (DD+) signal is invalidated, prices correct downward in such a way that the shallow rebound into Point c causes the formation of a first (DD-). Again, in the price chart, the vector for this (DD-) signal can be drawn based on the angle of the (DD-) resistance line and the calculated price target. The result is the trend vector ending at Target 3, which points downward, symbolizing the force pulling prices downward.

Figure 3.8 demonstrates a weakening uptrend followed by a trend reversal down in this time frame. We also know that if this scenario unfolds in the hourly charts, the larger magnitude price targets in the daily and weekly uptrend will never be reached until a reversal up in the hourly time frame occurs. Now, if we return to the vector representation of (DD+) signals and plot those in an imaginary trend-vector chart for the three time frames, we end up with something like Figure 3.9.



The vectors of the hourly time frame are marked H1, H2 and H3. The vectors of the daily time frames are labeled D, and the vectors for the weekly time frame are labeled W. It is clear that the H-vectors are smaller than the D-vectors, because they have smaller (DD) price targets resulting from the market of the hourly charts. The W-vectors are the largest because they are the result of giant (DD) signals in the weekly charts.

Situation 1 is simple. All three vectors H1, D1 and W1 pull in the upward direction. Vector H1 acts on vector D1 and both act on W1. There is a strong uptrend with no bearish elements present. Then, there is a change in the hourly vector H1b, which turns negative. If vector H1b continues to pull on vector D1, it will weaken its up-force and if this condition persists, will cause the daily vector to turn negative. This results in Situation 2.

Situation 2 is more complicated. The continuous down-force exerted by the hourly vector H2 has caused the daily D2 vector to turn neutral and the weekly vector W2 begins to feel the downward pressure. Overall, the uptrend of the markets starts to show weakness.

Situation 3 shows all three vectors pointing downward. The hourly time frame keeps generating (DD-) signals and the H3 vector still points down. In our imaginary scenario, this has caused a (DD-) signal in the daily time frame, resulting in the D3 vector pointing down as well. The persisting bearish sentiment that has generated a series of (DD-) signals in the hourly time frame and a (DD-) signal in the daily time frame now takes its

toll in the weekly charts as well. Vector W3 points downward with a first (DD-) signal forming in the weekly time frame. The down-force at this point is still moderate, but if all vectors continue to point downward, things will get worse. We may get another (DD-) in the weekly time frame with a sharply lower price target, as the daily and weekly vectors rotate clockwise, pointing deeper into the downtrend zone.

The start of a market recovery becomes visible if the first (DD+) signal appears in the hourly RSI chart causing the H-vector to turn up. The price moves up and down required for a (DD+) to form are the smallest in the hourly time frame. A trend reversal up is not possible without (DD+) signals forming first in the hourly charts. If the (DD+) signals keep making their appearance, eventually pointing to increasingly ambitious price targets, this series of price rallies will eventually add up to a sufficient total price increase and cause a (DD+) in the daily time frame. At that point, we would see the D-vector turn up as well, adding to the up-force acting on the W-vector, eventually pulling it into the uptrend zone.

The vector analogy is not a mathematically correct model. It would certainly be interesting to build a model that constantly calculates (DD) price targets in multiple time frames, while displaying the result in a single up-down vector of varying length. It is just an illustration of how to visualize the way identical or opposite (DD) signals affect the underlying trend.

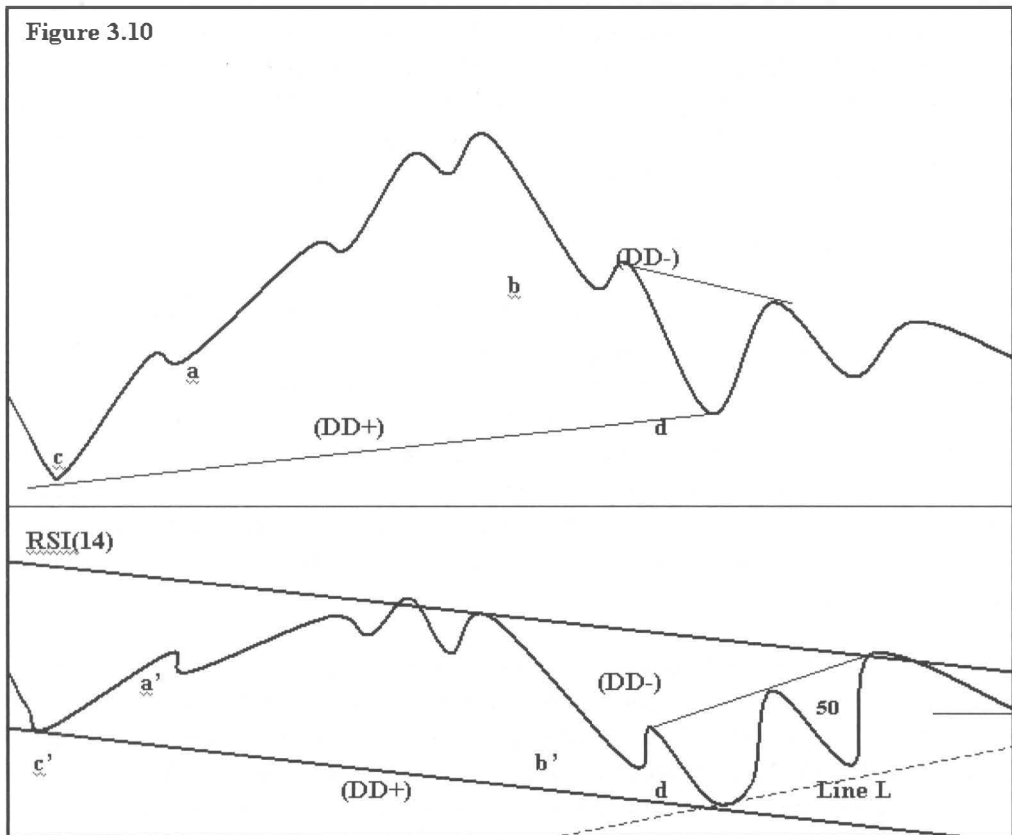
When (DD) price targets are not reached, it does not mean that the trend in a time frame is about to reverse. As we have seen, it could indicate that the trend is flattening, as new (DD) signals are forming with smaller price targets. After all, for a (DD+) to form in the daily charts, a shallow price retracement is necessary. But a shallow price retracement in the daily chart could be a substantial enough retracement in the hourly time frame to cause a (DD-) to form. This means that a (DD-) signal in the hourly charts, hitting its down price target, could very well be followed by a rally of the daily variety, simply because this price decline and rebound caused a (DD+) signal in the daily chart.

It is more important to check the direction of all three vectors, rather than to expect each (DD) signal to hit its price target and interpret the failure to do so as an immediate threat to the prevailing trend. Still, this brings us back to the point that it is important to look at the market activity in various time frames. A potential trend reversal will become visible first in the smaller time frames, when the smallest vector starts to act against the larger ones. The same principle applies to the combination of daily-hourly-15-minute time frames, or any other time frame of the same order that produces clear RSI channels.

***Important Note:*** Whenever I label a (DD) as having “failed” it does not mean that prices have not reached the projected (DD) target, but rather that either the RSI failed to escape from its channel when it was required for the (DD) signal to take effect or that the RSI violated the signal validity reference lines.

**PART VI****CONFLICTING SIGNALS IN THE SAME TIME FRAME**

Before examining the interpretation of opposing signals in different time frames, let's see what we can logically say about opposing signals occurring in the same time frame. Our understanding of how (DD) signals are formed and eventually invalidated will guide us to the correct interpretation.



**Figure 3.10** shows two conflicting (DD) signals. First, there is a (DD+) signal that forms along the lower boundary of the descending RSI channel and there is a (DD-) signal that forms in the descending channel. This picture looks familiar. The descending channel tells us something important because it leads to bearish territory. As we have seen earlier, a descending channel, at its beginning, is defined by (DD+) signal reference points. Unless the RSI escapes from this channel, it will end up in bearish territory. It would be logical to assume that there was a (DD+) signal prior to Point c as well, but we cannot tell from this chart.

The price decline leading to the formation of the (DD+) signal at Point d is quite deep, erasing most of the gains made during the rally. Still, this RSI behavior is not uncommon; it reverses up from the lower boundary of the channel, [which was probably already anchored on earlier (DD+) reference points]. The fact that a (DD-) signal formed tells us that the RSI must have entered bearish territory, where the disproportional moves of

the RSI occur to the upside. Look at the large price drop past Point b and compare it to the small drop in the RSI. From this information, we can determine that Point d must be situated below the 40-level, where the RSI gets compressed.

Past Point d, the moderate price rebound causes the RSI to move up in an out-of-proportion way, which causes the formation of the (DD-). In the example, this means that the RSI is approaching bearish territory because it failed to escape from its descending channel. In fact, we have already discussed this type of situation.

The appearance of a first (DD-) within the descending channel marks the point where the trend is about to change from up to down. In this case, the switch-over point has not been reached, but the market is approaching the decision point. The (DD+) signal is still valid because prices have not dropped below the support line and the RSI has not dropped below Line L. On the other hand, the (DD-) signal is valid because price has not climbed above the resistance line and the RSI has not broken out above the upper boundary of its descending channel. To put it simply, we are witnessing a bull-bear fight on the edge of bull-bear territory.

This condition will not occur at high RSI values. It typically develops in the area around 50, where both (DD+) and (DD-) signals have a chance of forming. The RSI is trapped between the top of its descending channel, [keeping the (DD-) alive], and the rising Line L, which is the limit of validity of the (DD+). If no break occurs to either side, the RSI will zero in on the 50-line, as long as the bulls and bears balance each other out. Under these conditions, a triangle will emerge in the RSI. In price, the (DD+) support line and the (DD-) resistance line often define a triangle or wedge-like formation until the RSI and price break up or down, and the balance finally shifts to the bullish or bearish side.

If the RSI breaks upward from its descending channel, it will reach bullish territory, where a rising RSI means rising prices. As the RSI remains above 40 within its ascending channel, a (DD+) signal will form, which means that we end up with two (DD+) signals in this time frame. When prices finally rise above the Lighthouse level of the (DD-), this signal is invalidated. As soon as the (DD-) signal is invalidated, the (DD+) can take effect and the rally will continue.

If the RSI breaks below Line L, the (DD+) signal is invalidated and the (DD-) takes effect as the RSI continues down within its descending channel. It will drop deeper into bearish territory until it hits mathematical resistance and starts to curl up while prices continue to fall, forming positive divergence. As price drops below the Lighthouse level of the (DD+), this signal ceases to exist.

A few words about Line L: Each time a (DD+) signal forms, we should draw a line that will define the limit of the validity of the signal. This ascending line should be drawn parallel to the reference lines of previous ascending channels. In this case, we could consider Line L to be the lower boundary of a larger ascending Channel<sup>2</sup>, which might be visible in a larger time frame. If Line L is indeed the lower edge of a large Channel<sup>2</sup>, we have an ascending channel, within which a (DD+) just formed. We know this pattern; it is a typical uptrend.

If the RSI breaks upward from its descending channel, this marks the start of an ascending channel, (or, in other words, the RSI is jumping into the next channel segment). If the RSI breaks below Line L, it drops below its ascending Channel<sup>2</sup>, invalidating the (DD+) signal. It would be interesting to look at the larger time frame in order to find out if Line L corresponds to a meaningful ascending channel and the level in which an anticipated RSI break-down would occur.

Another valid (DD+) signal appears between Point a and b (a' and b' in the RSI). Past Point b', the signal is invalidated. I would consider Point b (b') to be the failure point, because the price retracement is still shallow up to this point and the RSI is not in bearish territory. The RSI drops into bearish territory because it fails to escape from its descending channel in time. The RSI has the chance to escape after the (DD+) signal at Point b'. When a (DD+) signal fails, the RSI drops to the next (DD+), which has a less steep support line and a more modest price target. That is what happens past Point b'.



**Figure 3.11** Daily OIX

This chart illustrates the configuration within which opposing (DD) signals may occur. The big picture of a descending channel in this chart is clear. If the RSI remains within its descending channel long enough, it will end up in bearish territory and we may see the formation of a (DD-). The price retracement past Point X is deep enough that the

RSI falls to the 22-level. Still, at the same time, the price retracement is shallow enough to form a (DD+) along the lower boundary of the descending channel.

This (DD+) signal originates in bearish territory. We should be cautious and wait until the RSI rises above 40. Also, it is clear that the upper boundary of the descending channel barely reaches the 60-level. Even if the RSI is able to reach the top of its channel, it will still be in bearish territory. Notice that most of the RSI advance, after its bounce from the 22-level, is positive divergence. This means that the RSI will reach 60 with prices hardly moving up at all. This is the stuff that (DD-) signals are made of!

In fact, we can see the formation of two (DD-) signals, one in the dashed sub-channel starting at Point Y, and a larger one in the potential ascending channel originating at Point X. Please note that Point X in the RSI coincides with the moving averages crossover to the downside, as is often the case. For the (DD+) to take effect, prices must rise above the (DD-) Lighthouse level at Point Y, which invalidates the minor (DD-). We can consider this price area a resistance level. For the (DD+) to take effect, the RSI needs to break up from its descending channel by staying in its new ascending channel.

In price, the (DD+) support line and the (DD-) resistance line can be drawn, defining a triangle. If price breaks out from the triangle to the upside and rises above Level Y, the bulls are in charge. We should see the formation of a first (DD+) signal confirming the market's bullish mood. If price drops below the triangle *and* the RSI drops below its ascending channel, the (DD+) signal is invalidated and the (DD-) takes effect. This happens while the RSI drops towards the lower boundary of its descending channel. If the bull-bear fight remains undecided, prices will stay within the triangle, while the RSI keeps moving within the triangular overlap area of its descending and ascending channel, (centered on the 50-level). In this example, the failure point is Point Y.



**Figure 3.12** Daily Semiconductor Index (SOX)

This chart offers another example of two opposing (DD) signals in the same time frame. Point A marks a (DD+) signal within an ascending channel. This is a familiar picture of markets that are trending upward. Points B and C define another (DD+) that confirms the rally. But at Point Y, the RSI fails to rise into the next segment, (not unlike an RSI Squeeze). The price advance after the (DD+) signal is so weak that a (DD-) signal is formed at Points Y and X. As a result, a Line W-Y can be drawn as the potential upper boundary of a descending channel.

In this example, we end with two valid (DD) signals. The (DD+) signal remains valid as long as the RSI stays above Line A-C. The (DD-) signal remains valid as long as it stays below Line W-Y. Line A-C and Line W-Y in the RSI converge around the 50-level, demonstrating the market's indecision. In the price chart, the corresponding support and resistance lines can be drawn to define a triangle, which are continuation patterns. Normally, one would expect it to be broken to the upside. This time the bears win the fight, which is not surprising after the RSI Squeeze. At Point Q, there is a last ditch effort to save the (DD+) signal as price briefly bounces off the (DD+) Lighthouse level.

Shortly afterward, a new, tight (DD-) is formed. The line ending in Point Z marks a series of (DD-) signals within the descending channel W-Y-Z, as price slides twenty percent lower. Within the descending channel, the RSI refuses to drop below the 30-level and finally manages to break out from its channel as price rises above the (DD-) resistance line.

It is important to remember that opposing (DD) signals in the same time frame do not cancel each other. They tell us that the market is in a transition phase, where the fight between bulls and bears is undecided. This fight typically takes place around 50 in the RSI; the outcome of the fight could be a change in trend, as it might lead to an RSI range-shift. Neither signal should be disregarded until it is invalidated, meaning that you should not be tempted to rely on the most recent signal.

## **PART VII**

### **CONFLICTING SIGNALS IN DIFFERENT TIME FRAMES**

We have briefly discussed the importance of checking RSI signals in smaller time frames. Weakening of the trend will first be felt in the smaller time frame, resulting in signals that are contrary to the predominant signals in the larger time frame. We know that these early signals do not always point to an eminent trend change because they represent a small vector pulling on the trend. But if they persist, they might reverse the vector of the next larger time frame, which may spill over into the next larger time frame. So, if we detect an opposing signal in the hourly time frame, we need to find out whether it could push the RSI over the edge in the daily time frame.

The scenario for a trend change from uptrend to downtrend in the daily time frame follows this progression: The RSI drops below its ascending channel and continues down within its descending channel until it reaches bearish territory and the first (DD-) signal appears. An early (DD-) in the *hourly* time frame will tell us that 1) the price decline that caused it is deep and 2) the price bounce that followed is shallow enough to assume that the price retracement down is not over.

While the price decline that caused the (DD-) in the hourly chart is not deep enough to invalidate the (DD+) signal in the daily time frame, the next price decline could be. When is a (DD+) signal in the daily time frame invalidated? When the RSI drops below its ascending channel. A (DD-) signal in the hourly time frame will be an early indication that this may happen.

If price reaches the target for this (DD-), the total price retracement down may be deep enough in the daily chart to invalidate the (DD+). *I repeat: The invalidation of a (DD+) in the daily chart does not automatically mean the trend is changing.* As we have seen, if this happens high in bullish territory, it leads to the formation of a more modest (DD+) signal. The small hourly down-vector reduces the angle of the daily up-vector.

If the daily RSI is near 40 when an hourly (DD-) begins, this may mean the end of the uptrend in the daily time frame. This scenario results in two vectors pointing down, with the weekly pointing up but weakening or all three vectors pointing down as the price decline accelerates. Any way it is viewed, if the daily uptrend is to continue, it will have to overcome the (DD-) signal in the hourly time frame by invalidating it. This means

that the daily (DD+) must be able to push price above the Lighthouse level of the hourly (DD-) signal. If the daily (DD+) fails in this test, a failed (DD+) is the result. We have just studied two examples of what that might lead to. I refer to the failure points in either of the examples in the previous section, where the failure of prices to rally after a (DD+) caused the extension and deepening of the retracement down to the point where a (DD-) appeared within the descending RSI channel.



**Figure 3.13** Daily Oil Index

Let's return to the Daily Oil Index Chart in Figure 3.13. This is a chart I used earlier to illustrate the interpretation of two contradicting (DD) signals in the same time frame. We came to the conclusion that the failure point is Point Y. Here, a reversal up of the RSI from the 40-level, could have led to a break-out of the RSI from its descending channel. In this daily chart, prices have broken out from the triangle and a (DD+) signal has formed.

The RSI has broken the upper boundary of its descending channel, so we may assume that the RSI is now traveling within its ascending channel. The RSI is completing its upward leg within the sub-channel that corresponds to the small (DD-) originating at Point Y. Logically, the RSI will start a down leg, within its ascending channel toward Point B. Here a new (DD+) signal could form, marking the resumption of the rally after a mild price retracement. But, what of the failure at Point Y? Why was this the "go-no-go" point and what must the daily RSI picture have looked like back then?



**Figure 3.14** shows what the RSI picture looks like when the RSI reverses up at Point Y, forming a (DD+) with reference Points Q and Y. Given this (DD+) signal, we could have drawn a line through Point Y in the RSI that would have defined the lower boundary of an ascending channel if the (DD+) took effect. This line, together with the corresponding support line in the price chart, would also mark the limit of the signal's validity. This support Line Q-Y is quite steep, but the (DD+) seems trustworthy generated at the 40-level. Past Point Y, the (DD+) signal is invalidated.

If the uptrend is to be saved, prices can not drop below Point Q, [the Lighthouse level for the most recent (DD+)]. As the RSI reverses up at Point A, a new (DD+) signal forms. However, it originates in bearish territory. In the RSI chart, there is the resumption of an ascending channel from a lower RSI level. The same thing happened prior to Point Q in mid-May of 2006, when a prior (DD+) signal was invalidated as the RSI dropped to the 35-level. Within this RSI picture, we have two (DD+) failures and the RSI cascading downward, breaking below its ascending channel each time.

The last time this happened, the RSI ended in bearish territory at Point A and the rebound caused the formation of a (DD-) signal. Consequently, it would be logical to visualize the descending Channel<sup>2</sup>, within which the RSI is cascading down by connecting the RSI tops and the RSI lows.

The result in the RSI picture was discussed earlier in Figure 2.21: The RSI is sliding down in steps within its descending Channel<sup>2</sup>. Please note the significance of the moving average crossover points, both up and down, in the RSI.

Could we have had an early warning of the daily (DD+) failure at Point Y by studying the hourly time frame? Let's have a look. I refer to Figure 3.15.

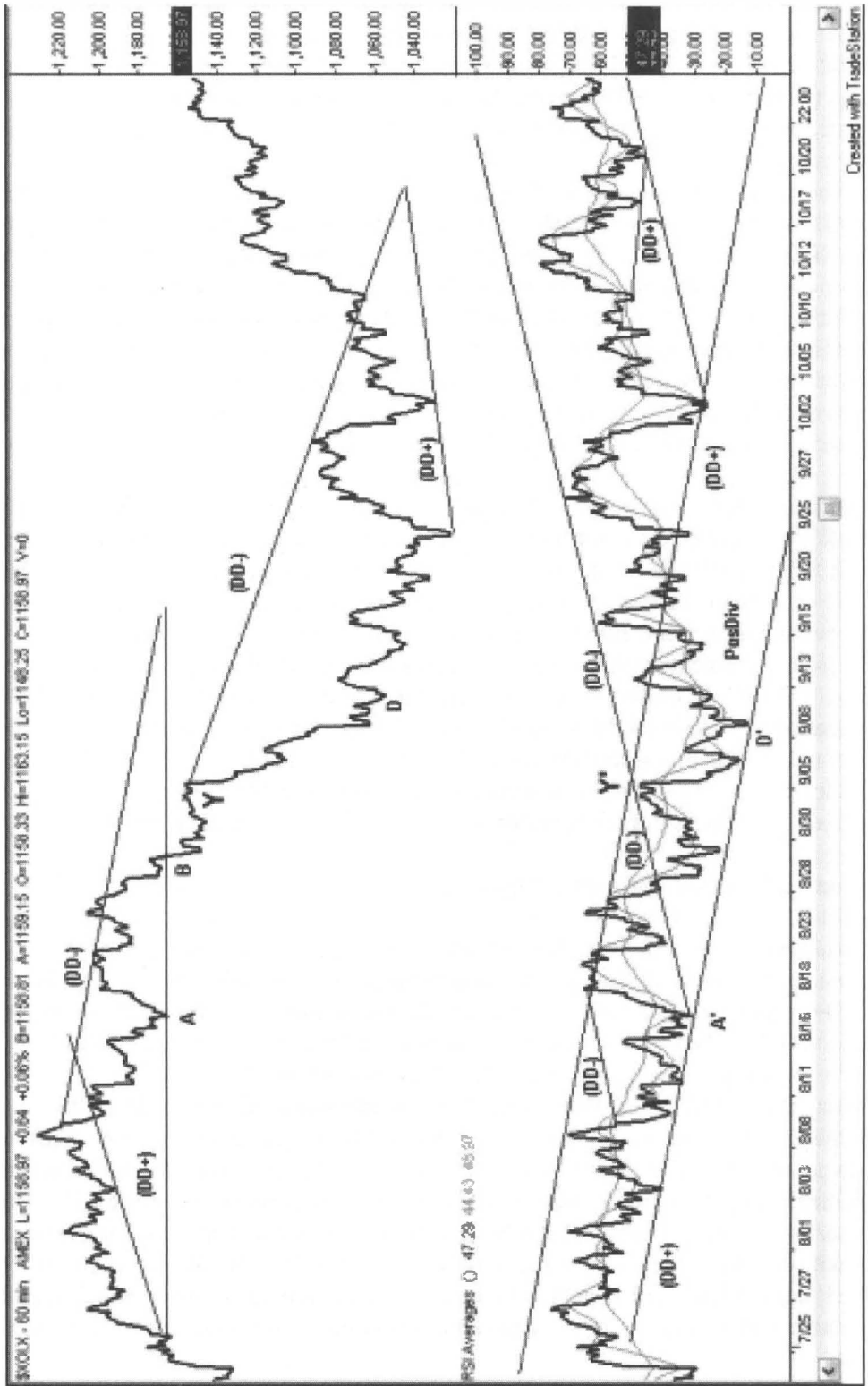


Figure 3.15 Hourly Oil Index

Figure 3.15 contains the failure Point Y, which is centered on the chart. At the beginning of the chart, the RSI is moving within a descending channel, still enjoying a (DD+) signal at the outset. This leads to a new high in price, but the rise is too steep to be sustainable and the initial (DD+) signal is invalidated. Not surprisingly, this leads to a new, more moderate (DD+) at Point A' (on the Lighthouse price level). Price rallies past Point A, but the RSI is unable to escape from its descending channel. This weak price rebound causes the formation of a first (DD-) in the descending RSI channel.

At this point, we have two conflicting (DD) signals in the same time frame. In price, this bull-bear fight is visualized by a wedge formation sitting on the Lighthouse level of the (DD+). In the RSI chart, the result appears in a triangle formed by the upper boundary of the descending channel and the climbing Line A'-Y', [the limit line for the validity of the (DD+)], and also the lower boundary of the potential new ascending channel, in the event the (DD+) should take effect. Both lines converge in Point Y', which is very close to the 50-level. Between Point A' and Point Y', the RSI drops below the Line A'-Y', indicating that it is staying within its descending channel and entering bearish territory as the (DD-) takes effect.

This means that there is probably going to be another (DD-). In price, the Lighthouse level A-B is broken at Point B, invalidating the (DD+) signal. Consequently, the next RSI rebound off the lower boundary of its descending channel does not produce a (DD+). Instead, a second (DD-) appears at Point Y because the RSI made an out-of-proportion jump while price hardly moved. This second (DD-) takes effect as the RSI drops into the next segment within its descending channel and price cascades lower. Past Point D', a positive divergence lifts the RSI back into bullish territory, but the extended Line A'-Y' defines a (DD-) along the upper boundary of an early ascending channel. Inside this ascending channel, a (DD+) signal is formed on October 2 and 3, marking the point where the overhanging (DD-) is possibly failing. These opposing signals result in a price triangle that is broken to the upside later in the chart.

Refer back to the daily chart in Figure 3.14.

Had we checked the hourly chart when the (DD+) signal formed in the daily chart, we would have noticed that the shallow price decline preceding the formation of this daily (DD+) signal was deep enough to cause the formation of a (DD-) in the hourly time frame. While the (DD+) signal in the daily time frame forms around the 40-level, the corresponding hourly RSI is well within bearish territory. As a result, the daily (DD+) signal has to overcome the hourly (DD-) signal in order to take effect. If a (DD+) signal of the daily magnitude is unable to overcome a (DD-) signal from a smaller time frame, it is going to fail. In the hourly chart, we should see the RSI escape from its descending channel and price should rally above the Lighthouse level of the hourly (DD-) with ease, following the (DD+) in the daily time frame. This did not happen and it is interesting to note that the failure in the hourly chart occurs when the RSI fails to continue up from the Line A'-Y', and consequently breaks the RSI triangle to the downside. I would not be surprised to find an early warning for this hourly (DD+) failure in the 15-minute chart!

In the daily chart, the failed (DD+) signal forms near 40. As it fails, the RSI drops below its validity limit line and immediately enters bearish territory as the decline in price accelerates.

What have we learned about the interpretation of opposing (DD) signals in different time frames?

The larger time frame (DD) signal is typically stronger than the (DD) signal emerging in the smaller time frame. Still, for the larger (DD) to take effect, it must override the smaller one; the shallow price retracement preceding the formation of the larger (DD) signal is deep enough to cause an opposing signal in the smaller time frame. If the smaller (DD) is allowed to take effect, this means the price retracement is going to become even deeper, possibly even deep enough to invalidate the larger (DD). If the larger (DD) signal occurs near the edge of bearish or bullish territory, the effect of the smaller contrary (DD) may be quite significant.

In conclusion: When a (DD) signal is detected, check the smaller time frame for contrary (DD) signals. If one is found, check its price target and examine what could happen to our larger (DD) signal if prices move to this target. It is assumed that the larger (DD) will take effect after the smaller (DD) signal is invalidated and price breaks the Lighthouse level of the smaller conflicting (DD) signal.

The same logic is used for opposing signals in the same time frame. *Wait until one of the signals is invalidated.* However, this time we are unable to draw a triangle to visualize the conflicting forces at work. The smaller (DD) Lighthouse level could be displayed in the larger time frame chart to mark the price level beyond which the larger (DD) will take effect.

This principle can be applied to any pair of time frames and the conclusion can be correlated to a third time frame. In this scenario, the middle time frame, (the daily time frame), could be called the “reference time frame.” The smaller hourly time frame should be checked for any contrary signals and the larger weekly time frame should be checked for the daily signal that aligns with the larger trend. The trend is strongest when all three vectors point in the same direction. The appearance of a contrary signal in the smaller time frame may be a sign of trouble ahead, until the effects of the larger one invalidate the contrary signal.

What can we conclude from our RSI analysis in the daily and hourly XOI charts? And how can this be related to the RSI picture in the weekly time frame?

We have learned that the daily RSI is moving within its ascending channel and that this channel originated in bearish territory. We also know that this ascending channel is the last of a series of ascending channels that were all broken to the downside. These channels look like lower steps within a larger descending Channel<sup>2</sup>, [which has produced a (DD+) signal], but the market reaches bearish territory and the most recent ascending channel within it defines a contrary (DD-).

This tells us that the trend is in a transitional phase and the RSI must escape from its descending Channel<sup>2</sup> in order to avoid a downward trend reversal. One way for the

RSI to escape from its descending channel is to stay within the new ascending channel, as we have seen price exceed the Lighthouse level of the hourly (DD-) and a (DD+) appear in the ascending channel.

We also anticipate that the RSI will drop to the lower boundary of its ascending channel sooner or later, forming a (DD+) near Point B in Figure 3.13. This Point B in the RSI is situated around the 35-level, which is on the edge of bearish territory. A repeat of previous (DD+) failures at this point will quickly put the RSI back in bearish territory.



**Figure 3.16** Weekly XOI

The descending Channel<sup>2</sup> detected in the daily chart corresponds to the descending sub-channel developing throughout 2006. What do we see? The RSI is in bullish territory, reversing up from the 40-level at the lower boundary of its ascending Channel<sup>2</sup>. There is a giant (DD+) signal [or series of (DD+) signals], inside this ascending Channel<sup>2</sup>. This is a textbook uptrend, as long as the RSI stays within this Channel<sup>2</sup>.

On the other hand, there is a giant negative divergence defining the upper boundary of the descending channel. This is not a problem, as long as the divergence does not push the RSI into bearish territory. So far, it has not and there are no (DD-) signals within this descending channel. Still, the RSI has not made its way into the next channel segment. We can look at the negative divergence from two sides:

- 1) It has taken the RSI lower without declining prices. If the RSI resumes its climb within its ascending Channel<sup>2</sup>, the rally is going to continue or accelerate, or
- 2) It has taken the RSI to the limit of bearish territory and may push it over the edge.

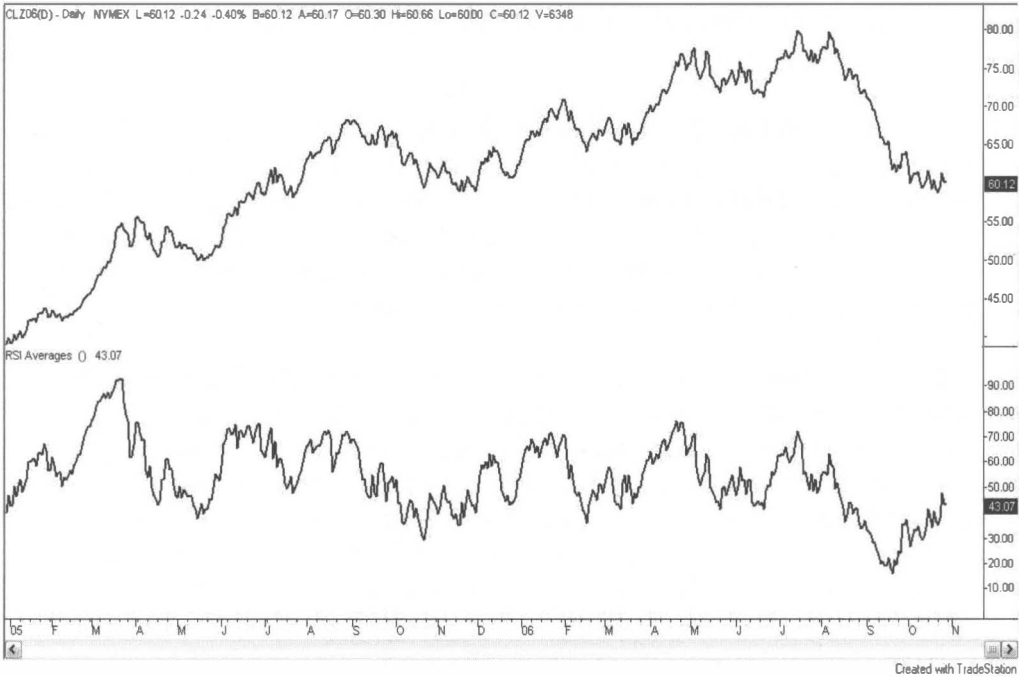
Both views are valuable. In the chart, this duality is expressed by the RSI driving into a triangle, formed by the descending line of the negative divergence and the ascending lower boundary of its Channel<sup>2</sup>. When extended to the right side of the chart, these lines cross near the 50-level.

Also, the upper boundary of the descending channel only reaches the 60 to 65 level, so, for the latest (DD+) to take effect, the RSI will need to break out from this channel. On the other hand, this (DD+) will be invalidated if the RSI should drop below its Channel<sup>2</sup>. This is the essence of the RSI triangle dilemma: Which way is the RSI going to break? For now, the weekly picture is bullish. If another (DD-) signal appears in the daily chart, it would indicate that the recent weekly (DD+) signal might fail.

The weekly RSI needs to break from its descending sub-channel before even attempting to escape from the larger channel around the 60-level. The daily chart indicates that the RSI will probably decline *from here* in order to test the lower boundary of the ascending channel. At the boundary, it should form a (DD+) signal, which should propel it back into bullish territory. At this time, it looks like the weekly RSI is not going to escape from its descending sub-channel soon. A new (DD+) signal in the daily seems to be required first. This time, the failure of this upcoming daily (DD+) could be real trouble!

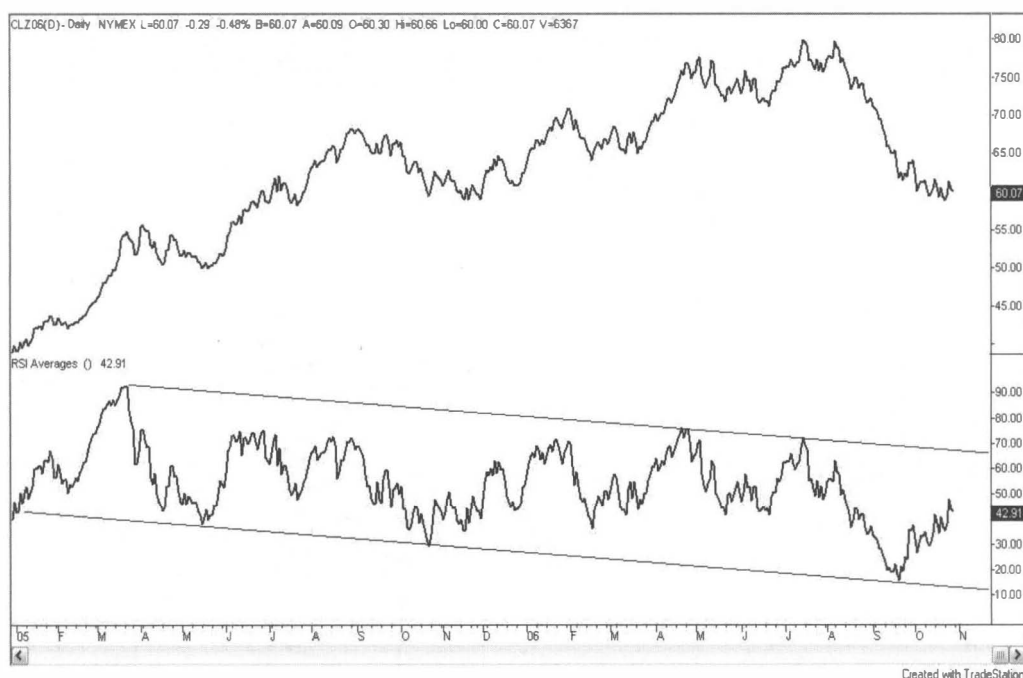
In the weekly price chart, the most recent (DD+) signal indicates a weakening or flattening out of the uptrend. If the RSI declines from its present position as the daily chart suggests, it heralds the formation of a giant Head & Shoulders. This should come as no surprise, as the descending sub-channel is approaching bearish territory and within this sub-channel, the last RSI rise only got to the 56-level, meaning no higher high in price on the right shoulder.

Another example of conflicting (DD) signals in different time frames can be found in the next pages, where we examine the daily and hourly crude oil futures charts.



**Figure 3.17** Daily Crude Oil Futures (Dec. 2006)

We start off with a “naked” chart and attempt to detect the meaningful RSI channels and the corresponding reference lines. We consider this daily chart to be the “reference” time frame and correlate it to the hourly and weekly charts. In the price chart, there is an uptrend going with a significant correction down toward the right edge of the chart. We should expect to find (DD+) signals within an ascending channel, but the general aspect of the RSI picture appears to be a large descending channel. A look at the weekly chart confirms this view.



**Figure 3.18** Descending Channel in the Weekly RSI

At the beginning of a descending channel, the lower boundary often defines (DD+) signals, (for instance, in the case of a negative divergence). We also know that if the RSI fails to escape from its descending channel, it will end up in bearish territory. This is what we see happening in September 2006, as the RSI reaches a low around 15, deep in bearish territory. It looks like we could be on the verge of a range-shift and trend reversal. Where did things go wrong?



Note that the dotted line in the RSI chart, originating in May of 2005, is the lower boundary of an ascending channel that followed the initial (DD+) signal. The RSI dropped below this line in September 2005 but at Point X, the RSI formed a more modest second (DD+), marking the start of the ascending channel that remained intact until August of 2006. Within this channel, there are two (DD+) signals.

In August 2006, when RSI breaks down from its channel, we would expect to see the RSI drop to the nearest (DD+) reference line and start a new ascending channel from there, similar to what happened at Point X.

As we see price drop below the latest (DD+) support line in August 2006, while the RSI drops below its ascending channel, the conclusion is that the latest (DD+) is too ambitious and that the RSI is going to form another (DD+) at a lower level, when the rally should continue. This should have happened at Point A (Point A' in the RSI). Price reached the (DD+) support line and the RSI reversed up from the extended reference line of the previous (DD+) around the 35-level.

Up to that point, it looks like the rally is starting its next leg upward. Normally, at Point A', we would have drawn a line parallel to the previous boundaries of the ascending channel. I have deleted this line to avoid cluttering the chart. The RSI was expected to remain above this line, within its newly defined ascending channel as the rally continued. At Point A', the RSI is on the edge of bearish territory and if the (DD+) fails, bearish territory is immediately entered.



The hourly chart shows that prior to the potential (DD+) in the daily chart, the RSI forms the first (DD-) in mid-August and the second (DD-) should form soon, unless price exceeded the Lighthouse level at \$74. The RSI fails to break from its descending channel in late-August and early-September 2006. Consequently, the RSI drops into the next lower channel segment within its descending channel as the (DD-) signal takes effect. By then, the upper boundary of the descending channel is at 60, which leads the RSI further into bearish territory. As the chart shows, the price decline then accelerates.

At the time of the emerging (DD+) in the daily chart, we knew that the price decline preceding the (DD+) signal was deep enough to cause a conflicting (DD-) in the hourly chart. For the (DD+) to take effect, it had to override the hourly (DD-). This means that the daily (DD+) would take hold, if it could push prices above \$74. After that, we could expect price resistance around \$77, [the Lighthouse level of the previous (initial) hourly (DD-) signal].



**Figure 3.22** Weekly Crude Futures (the big picture behind the daily and hourly signals)

Figure 3.22 illustrates the ascending channel originating from Point X in the daily chart. It corresponds with the ascending channel defined by Line C-X in the weekly time frame. The RSI breaks to the downside from its initial ascending channel after a negative divergence. (This is the beginning of the descending channel detected in the general picture of the daily chart). As expected at Point C, a new (DD+) forms. The rally continues unchallenged, while the RSI manages to stay within its new ascending channel. The RSI is unable to break the negative divergence in the daily chart, and at Point X, it breaks down from its ascending channel. Point X in the weekly chart coincides

with the failed (DD+) at Point A' in the daily time frame. In this weekly chart, Point X is situated near the RSI 50-level.

A contrary signal in the hourly time frame should be taken seriously. Its existence is significant, as it is proof that the price retracement is deep in this time frame. If an hourly signal is not invalidated by a larger signal, it *will* take effect, possibly deepening the price retracement enough to invalidate the larger daily signal. These effects may eventually spill over into the weekly time frame.



**Figure 3.23** Daily S&P 500 Index

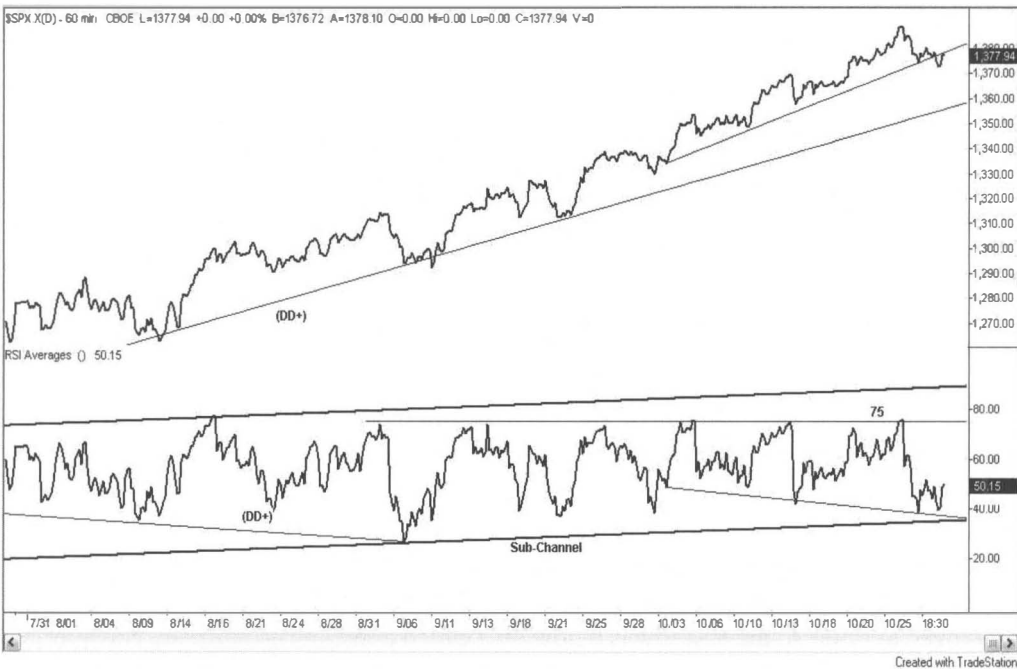
Figure 3.23 illustrates a clear uptrend in price. However, the RSI Channel<sup>2</sup> is descending and a negative divergence is defined by the upper boundary of this Channel<sup>2</sup>. Along the lower boundary, there is a (DD+) signal in October 2005 and another at Point A. However, at Point A, the RSI low is below 40, (which comes as no surprise, considering the presence of the descending Channel<sup>2</sup>). The RSI rebound from Point A leads to the formation of a (DD-) signal at Points X and Y. In price, these contrary signals are expressed by the triangle defined by Line X-Y at its top and the (DD+) support line at its bottom.

In the RSI, (dashed) Line X-Y defines a new, steeply rising ascending channel. The angle of Line X-Y suggests that this is a sub-channel within a (more moderate) ascending channel. Past Point Y, the question is: Will the RSI manage to break out of its descending channel? If it fails to break out, the RSI is in danger of dropping below its sub-channel X-Y. This means that the (DD-) signal is taking effect, indicating lower prices. Surprisingly, the RSI manages to stay within its steeply ascending sub-channel and

price breaks to the upside from the triangle. Subsequently, as price rallies above the (DD-) Lighthouse level at Point X, this (DD-) is invalidated.

In October 2006, the RSI approaches the upper boundary of its descending Channel<sup>2</sup>. At some point, the RSI should start a down-leg to the lower boundary of its ascending channel, which begins at Point A. However, the RSI moves upward and negates the descending Channel<sup>2</sup>. We should expect the RSI to continue moving higher within its ascending channel, where it may form a (DD+) when it rebounds from its lower boundary, well above the 40-level.

Let's assume that the RSI forms a (DD+) signal at the lower boundary of its ascending channel, after completing a down-leg within a sub-channel. If this (DD+) is situated on the declining line running through Point Y, we can conclude that price should not be lower than (approximately) 1300 when the RSI reverses up from the lower boundary of its ascending channel. This makes the formation of a (DD+) signal a plausible scenario. What does this look like in the hourly time frame?



**Figure 3.24** Hourly SPX

The steep sub-channel in the daily RSI corresponds to the ascending channel, labeled “Sub-Channel” in this hourly chart. Not surprisingly, we find several (DD+) signals confirming the uptrend. Strangely, the RSI is unable to rise above 75 – a respectable level in this time frame, given that price reaches new highs each time the RSI hits this level. Still, a strong uptrend should be able to push the RSI up to the 90-level in the hourly time frame. If the RSI is unable to break above 75, it will be pushed below its

ascending channel. This should definitely be monitored, as the RSI should start its down-leg in the daily chart very soon.



**Figure 3.25** Hourly SPX (continued from Figure 3.24)

In early November 2006, the lower boundary of the ascending channel is violated by the RSI. This indicates that it may start a new descending channel along the reference line of the most recent (DD+). In the daily chart, this is where the RSI drops below its steeply ascending sub-channel, marking the beginning of its anticipated down-leg. The hourly RSI confirms this when it fails to reach 75, indicating that the new descending channel is its boundary.

The hourly RSI drops to the bottom of this channel, which is well within bearish territory. The RSI rebound from the 25-level produces a (DD+) signal. However, the chart shows that the descending channel will limit the RSI advance to the 60-level, where a (DD-) signal will form. Since it will be the first (DD-) signal to form in several weeks, this signal is significant. Remember that we anticipated the formation of a (DD+) in the daily chart. This could mean that we end up with conflicting signals in different time frames. In other words, the daily (DD+) is unreliable until it succeeds in invalidating the potential hourly (DD-).



**Figure 3.26** Daily SPX

As anticipated, the RSI starts its down-leg inside a descending sub-channel (on its way to Point B). This does not lead to a lower high in price, as we are witnessing the start of a negative divergence. At this point, a reversal upward in the RSI will produce a (DD+). Assuming that the RSI is going to climb to the top of its sub-channel, which is situated near the 70-level, we can expect to see price reach (or even exceed) the previous high. However, a (DD-) signal is likely to form in the hourly time frame. How could the upcoming daily (DD+) invalidate the hourly (DD-)? The rebound in the hourly chart could continue upward and cause the RSI to break out from its descending channel.

Now, refer to the triangle (in the price chart) defined by the reference lines of the two contradictory (DD) signals. If two opposite (DD) signals are detected, the most recent one is *not* automatically the one that should take precedence. In this case, the (DD-) signal generated at Points X-Y is invalidated, even though it is a tight, strong signal. When two contradictory signals are valid, wait until one signal invalidates the other.



**Figure 3.27** Weekly SPX

This chart is the background information behind the daily and hourly charts. In 1999 and 2000, we see the formation of a triangle in the RSI. As the RSI breaks from the triangle to the downside, a bearish market develops in 2001 and 2002. In Quarter 3 of 2002, a positive divergence marks the start of an ascending RSI channel, which carries the RSI into bullish territory. In Quarter 3 of 2004, a (DD+) signal forms, confirming the trend reversal. The RSI stays within its ascending channel as prices advance, but a negative divergence extends from 2004 to 2006.

The negative divergence corresponds to the descending channel in the daily time frame. In fact, the RSI is unable to rise above 65 for two years. The RSI drops below its channel in mid-2006; this is an RSI break-down from the triangle, like the one seen in 2000. The RSI rebounds from the 40-level and continues upward, breaking the negative divergence and rising above 65. In the daily chart, this corresponds to the unexpected break (in RSI) in the upper boundary of its descending channel, which is rather unusual. Because the RSI has not dropped below 40 for the last three years, the daily and hourly scenarios previously studied must be against a bullish background. It looks like the rally should get new energy as the weekly RSI breaks above 65 (after being confined in the range from 40 to 65 for three years). In the near term, the (DD-) signal in the hourly time frame should be monitored. Is it going to be negated by the larger daily (DD+), or is this the first sign of trouble?



**Figure 3.28** Daily SPX

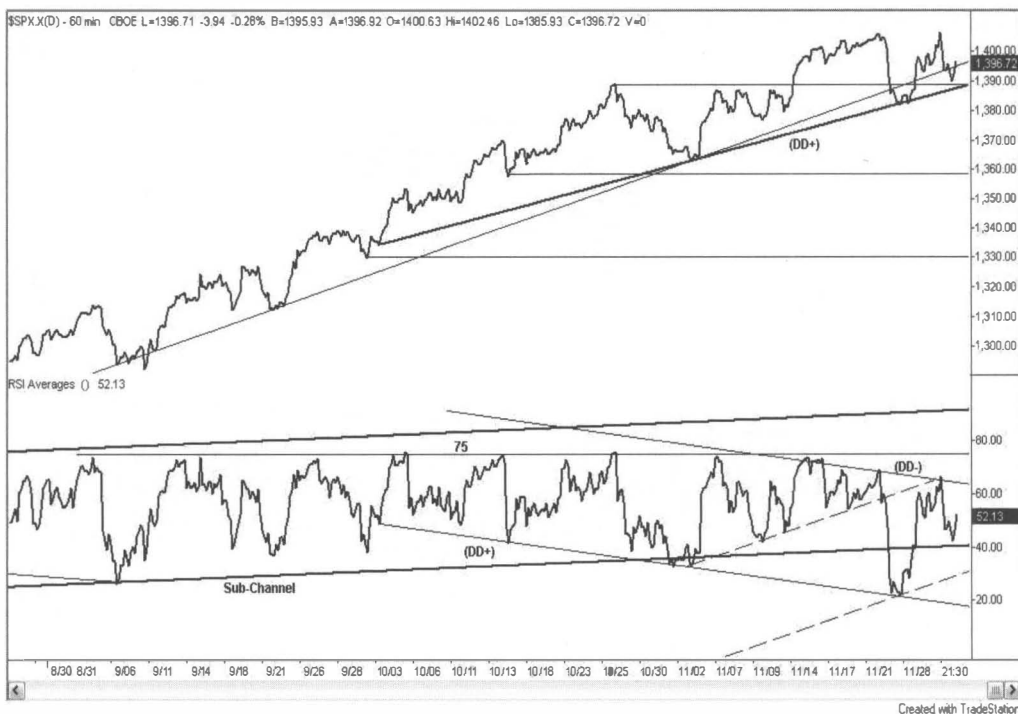
Figure 3.28 shows the daily SPX chart from November 30, 2006. As expected, the RSI reverses upward from the lower edge of its sub-channel, forming a (DD+) signal well above the 40-level. Price rebounds nicely from the (DD+) support line. It is clear that new price highs will be reached, if the RSI continues up to the upper boundary of its sub-channel, around 70. Apparently, this is the start of a negative divergence. What does this look like in the hourly RSI chart?



**Figure 3.29** Hourly SPX (December 1, 2006)

In Figure 3.29, the recent rebound in the market can be studied in detail. The RSI reverses upward from its descending channel (from around the 20-level), which corresponds to a rebound off the 49-level in the daily chart. This means that the recent price retracement within the daily picture is shallow, while it is relatively deep in the hourly time frame. We anticipate that the RSI will bounce to the top of its descending channel, corresponding to the sub-channel down-leg in the daily (around the 60-level), only to form a (DD-) signal.

Because of price action, the RSI reaches the top of its channel, and price reaches the prior high level. This is called a “timid” (DD-) signal. The RSI does not break out from its descending channel. However, if it doesn’t break out soon, the daily (DD+) will *not* take effect and its price target will *not* be reached. If it does break out, we ask: Will the RSI be able to rise above 75? For now, it looks like the RSI is traveling within its descending channel. If it continues down from here, we may see a lower low in price. For the daily (DD+) to take effect, the hourly RSI needs to break from its descending channel first. If we are looking for an opportunity to go long on the SPX, the hourly RSI has to break out first.



**Figure 3.30** Hourly SPX (December 2, 2006)

The RSI is meandering within its descending channel; for the (DD-) to take effect, the RSI must continue down within this channel, dropping below the lower dotted line into the next lower segment. We also know that there is a (DD+) in the daily time frame.

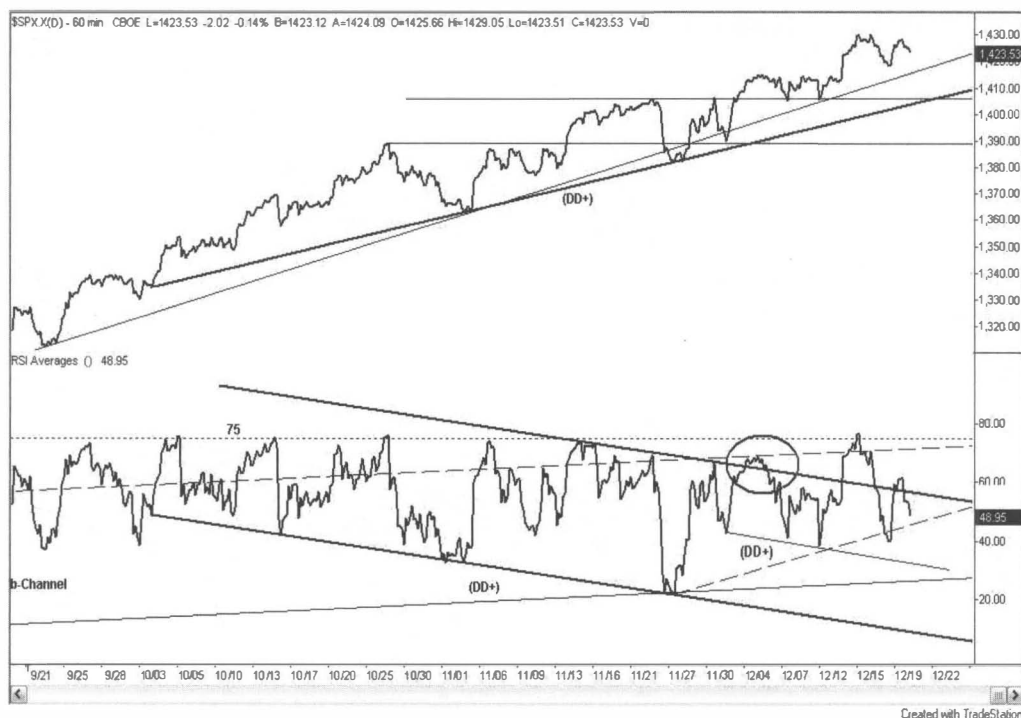
In this time frame, there are two conflicting (DD) signals. There is a weak (DD+) signal (originating in bearish territory) and a timid (DD-) signal. For the former to take effect, the RSI needs to break out to the upside. For the latter to take effect, the RSI must drop below the lower boundary (dotted line) of a potential new ascending channel.

If we mentally extend these reference lines to the right, we can imagine a triangle centered on the 50-level. Let's wait and see which way the RSI breaks out. In the hourly price chart, this could correspond to the formation of a triangle, or wedge formation, with prices cornered between the rising (DD+) support line and the 1400-level. The market bias has to be bullish because the RSI vectors in both daily and weekly time frames are still pointing up.



**Figure 3.31** Daily SPX (December 21, 2006)

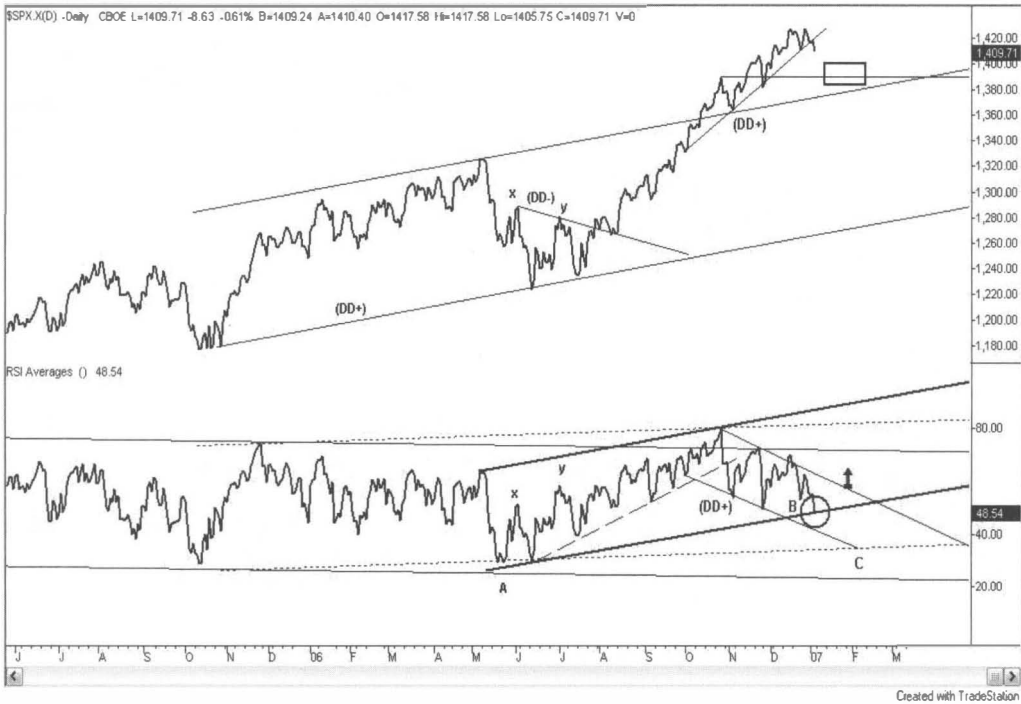
The RSI continues its bounce off the sub-channel (DD+) reference line, pushing prices to new highs, well above the price support line. The RSI is ready to start its decline into area B at the bottom of its ascending channel.



**Figure 3.32** Hourly SPX (December 21, 2006)

Following the (DD-) signal at the end of November, the RSI breaks above its descending channel, (circled) and appears to enter an ascending channel. Here, a (DD+) signal forms, while price rallies from the 1400- to 1430-level.

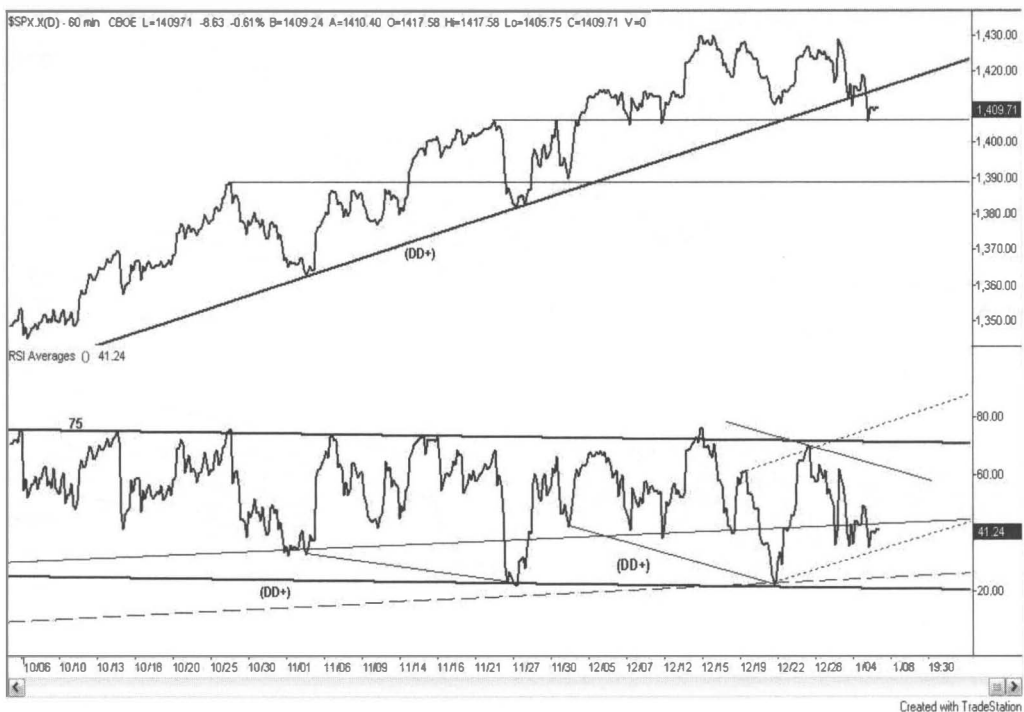
The RSI Squeeze at the 75-level is violated, so all the bearish elements have disappeared. If the RSI is going to continue down [to reverse up off the (DD+) reference line], prices are not going to fall below the support line at 1410. The first sign of trouble will be when the RSI drops below its ascending Channel<sup>2</sup>. When that happens, troubles will quickly get worse if the daily RSI breaks below Line A-B!



**Figure 3.33** Daily SPX

A few weeks have passed since our last analysis of the SPX chart. The RSI has moved lower, reaching the target circle on Line A-B within the descending sub-channel. The negative divergence has pushed the RSI lower, but it is still in bullish territory at the 48-level. We know that the RSI must escape from its descending sub-channel in order to continue the rally. Line A-B is the lower boundary of the ascending channel; we will need to monitor whether or not the RSI will manage to stay in it.

If the RSI is unable to stay within the ascending channel, we can assume that the drop in RSI values will continue to the (DD+) reference line, while price drops to the 1390 area. When the RSI reverses upward from that line, there will be a new (DD+) signal. However, the rebound will not take price to new highs unless the RSI manages to break out. This is an interesting example of Time Frame Correlation; we need to determine as soon as possible if the daily RSI is going to drop below Line A-B. If this happens, the RSI could continue down to the dotted Line A-C, (the lower boundary of a potential ascending Channel<sup>2</sup>). Until now, we have considered a descending Channel<sup>2</sup>. However, since the RSI breaks its upper boundary in October 2006, this indicates that the RSI may start a new Channel<sup>2</sup>. An RSI break below Line A-C, which is situated near the 40-level, would be a significant sign of future market activity.



**Figure 3.34** Hourly SPX

Figure 3.34 shows that the RSI rallies above 40 after positive divergence develops. This positive divergence indicates that the RSI in the daily chart will probably not drop below Line A-B without an attempted rebound. The RSI is cornered in a triangle [defined at its lower edge by the dotted positive divergence line and at its upper edge by the next RSI segment line running parallel to the latest (DD+) reference line]. This RSI triangle, when broken, will give us an early indication of a potential cascading effect in the daily picture. Also note that the upper dotted line defines a timid (DD-). This is a timid signal because the corresponding reference prices are nearly equal.



**Figure 3.35** Hourly SPX (January 11, 2007)

Here, the RSI breaks out of the triangle to the upside. If the RSI is traveling within its ascending channel (dashed lines), it should soon break the top of the descending channel. This represents an important signal, as it indicates that the negative divergence is breaking. This could happen in the next session. But, we may see the RSI decline to Line Q-R first, or even lower, forming a (DD+) signal within the ascending channel near Point S. In the RSI chart, notice that the boundary lines of the two candidate channels converge at the 50-level. Given the uptrend and the recent RSI break-out to the upside, the ascending channel is now our main reference.

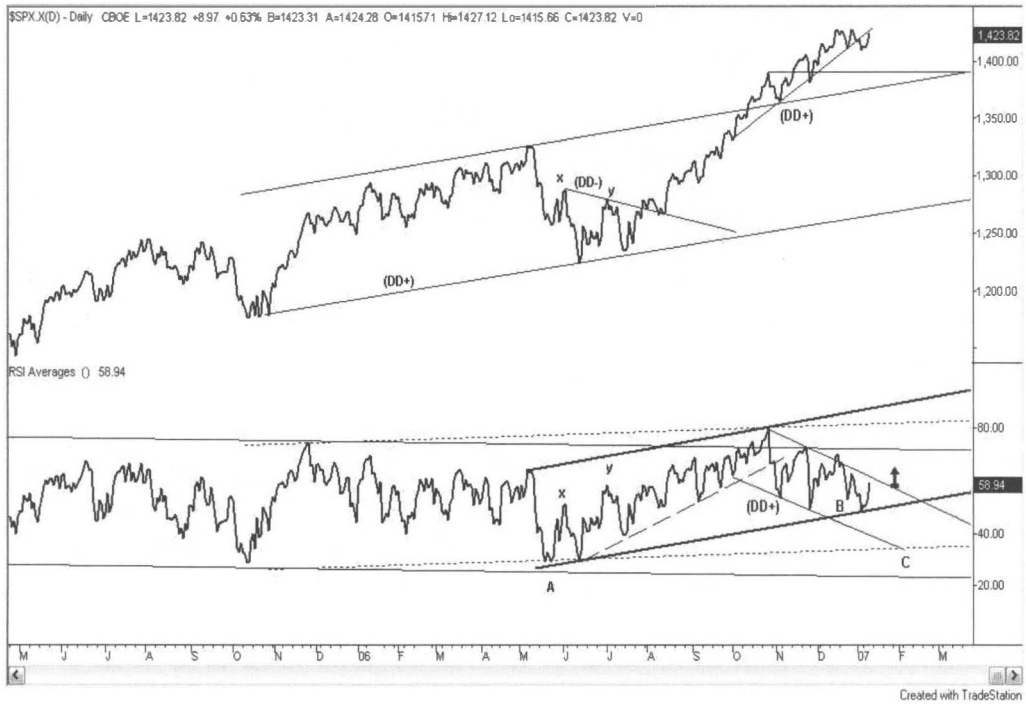
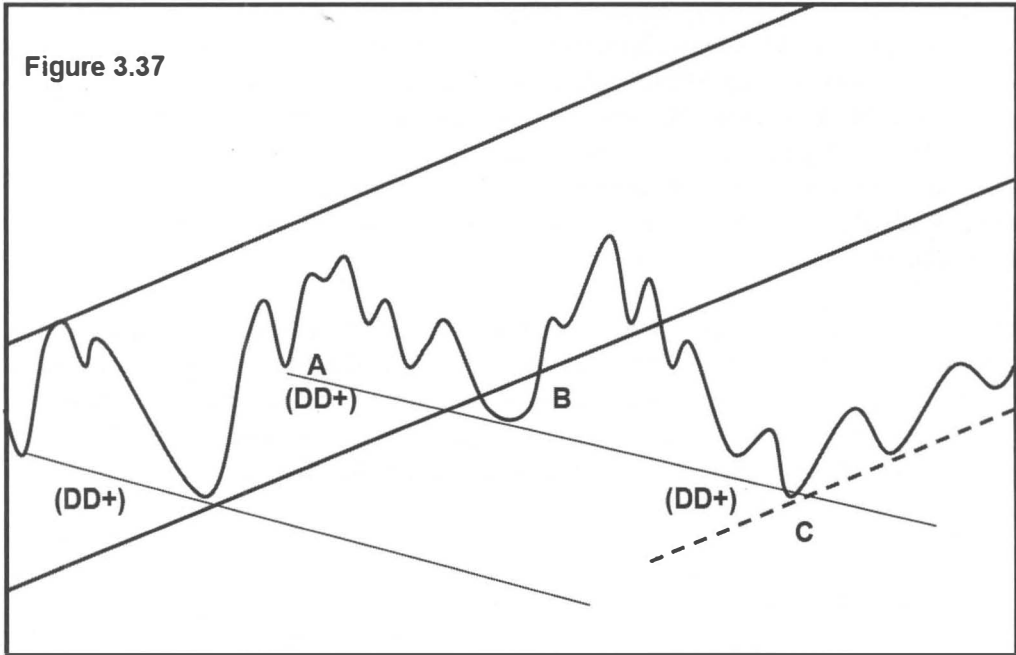


Figure 3.36 Daily SPX (January 12, 2007)

**PART VIII****PROJECTED PRICE TARGETS REVISITED**

We know how to calculate a price target, starting from the (DD) reference price levels. What else can be said about probable future price activity when analyzing the RSI? When the market is in an uptrend and the RSI drops below its ascending Channel<sup>2</sup>, which price target level can we anticipate?

Figure 3.37 illustrates such a situation. The RSI is initially traveling within its ascending Channel<sup>2</sup>, forming consecutive (DD+) signals. In this example, the last (DD+) forms at Points A and B. Typically, the RSI will violate the boundary before breaking down in the next cycle. If this happens deep in bullish territory, with RSI tops around 80 to 85, we can assume that the RSI is temporarily shifting to a lower gear, dropping to a new, less ambitious (DD+).

When the RSI breaks below its Channel<sup>2</sup>, the reference Line A-B [of the most recent (DD+) signal] is extended; we can presume that the RSI will reverse there. Why? In an uptrend, a new (DD+) will form as long as the RSI stays above 40. (You may want to check the next larger time frame to confirm). Consequently, if an RSI reversal up at Point C is anticipated, forming a (DD+) signal above 40, we know that price at Point C will not be lower than at Point A. If it were lower, there would be no new (DD+) at Point C.

When the RSI drops below its Channel<sup>2</sup>, price will not initially drop to a lower low. This is the basic concept behind a (DD+): a reversal up after a shallow retracement down in an uptrend. If a long position had been taken after the first (DD+), the stop-loss order can be moved to the price level corresponding with Point A. This is because price will not drop below this level, as long as the uptrend remains intact in this time frame.

If the RSI continues down within its descending channel, past Point C, the situation will change. We know that descending channels, even if they define (DD+) signals, will initially lead the RSI into bearish territory. This corresponds with the fact that the price decline will not break the (DD+) Lighthouse level, if the uptrend is to continue. If price falls below the (DD+) Lighthouse level, this means that the price retracement down is not shallow in that time frame and price is less likely to reach higher highs. *Note that this scenario applies to cases where the RSI starts from a strong position. It is not to be applied after an RSI Squeeze, which sees the RSI surrendering from a position of weakness.*

Of course, it is possible that the RSI break-down from its Channel<sup>2</sup> was preceded by a (DD-) signal in the smaller time frame, which would allow the calculation of a more precise price target. This price target could be correlated to the price estimation just discussed. In other words, the projected price retracement from this (DD-) could possibly qualify as a shallow retracement in the larger time frame.



Figure 3.38 Hourly LRCX

The RSI travels within its ascending channel until October 20<sup>th</sup>, when it violates its lower boundary for the first time. This causes the formation of a (DD+) signal, but it is clear that the RSI is not strong enough to jump into the next channel segment. By the end of October, the RSI drops below the channel again and the (DD+) reference line takes shape as the lower boundary of a descending channel. Past Point X' (at the center-right of the chart), the RSI surrenders and falls below the ascending channel line. We should expect the RSI to drop to the nearest (DD+) reference line, because the uptrend should continue. This happens as expected, but the RSI reversal up occurs well within bearish territory. Prices edge lower as the RSI curls up and builds a positive divergence along the (DD+) reference line, (which is now the bottom of the new descending RSI channel). Prices hold nicely above the main (DD+) support line.

Since, a new (DD+) signal develops in early December, a tentative line can be drawn in the RSI chart, parallel to the previous ascending channel. This line should prove to be the lower boundary of a future ascending channel, (assuming that the RSI break-down is not affecting the uptrend, but rather a preamble to a new RSI run). At this point, we know that the RSI is meandering within its descending channel, so what can be said about future prices?

Look at the distance traveled upward by the RSI from the lows early in December. The upward move in the RSI is out-of-proportion with the rise in price. This is not surprising. As the RSI crosses 50, this effect will lessen and the RSI will compress when it approaches the 70-level. It is unlikely that prices will reach \$56 by the time the RSI hits the upper boundary of its descending channel near the rectangle on the chart. However, if the RSI reaches the rectangle with prices below \$56, a (DD-) signal forms. This happens as a consequence of the RSI drop below its ascending channel. It could be the beginning of a descending channel and it could cause a reversal (DD-), and even possibly invalidate the most recent (DD+).

If a long position is taken, following this last (DD+) signal, we should be aware that the rally could run into trouble at price level X, the Lighthouse level of the potential (DD-). Imagine the RSI reversing down from the rectangle; if this occurs we probably have a (DD-) signal (with the RSI staying within its descending channel). If this (DD-) materializes, we will have two conflicting (DD) signals in the same time frame. A triangle is forming in the RSI (centered on the 50-level). Look at the upper boundary of the descending channel. The RSI value on the right edge of the chart reaches 68. The rising lower boundary of the potential ascending channel reaches 32. These lines are converging symmetrically toward the 50-level, forming a triangle. How does this hourly picture relate to the larger daily background?



**Figure 3.39** Daily LRCX

The positive divergence and RSI rebound examined in the hourly chart produced a (DD+) signal in the daily chart, well above the RSI 40-level. The recent price decline that pushed the RSI into bearish territory in the hourly chart corresponds to a shallow retracement in the daily chart, causing a (DD+) signal to form well within bullish territory.

The big picture presented is bullish. What else can be said about the daily RSI picture? We have a descending channel (negative divergence) taking the RSI to the edge of bearish territory in July 2006. There is a (DD-) signal in September 2006; the conflicting (DD) signals form a triangle formation in price that is broken to the upside. The RSI violates the upper boundary of its descending channel in October. The circled violation provides an indication that the RSI might escape and continue up within its ascending channel. Price is well above the main (DD+) support line and reaches a new high.

This means that the RSI has yet to reach the point where a Head & Shoulder formation occurs in price. Also, we see the RSI meandering within a sub-channel on the down-leg, inside its descending channel.

If the daily RSI continues up to the upper boundary of its sub-channel around 65, price should reach (or even exceed) the prior high. However, in the hourly picture, the \$56 resistance level in price must be exceeded first, invalidating the hourly (DD-). There is a (DD+) in the daily uptrend, but a (DD-) signal in the hourly needs to be invalidated for the rally to continue. We can expect prices to initially rally to \$56.



**Figure 3.40** 15-Minute LRCX (Chart #1)

Is there a warning prior to Point X? What potential (DD-) is looming in this time frame?

Apparently, there is no (DD-) signal in the 15-minute time frame (prior to Point X) that could be used to calculate a price target if the RSI dropped below its channel. The positive divergence detected in the hourly chart is also visible in this chart. It has pushed the RSI over the 40-level, even though price has hardly moved up. Also, the recent RSI rebounds, which caused the positive divergence, have formed a (DD-) signal at Points X' and Y'.

Opposing (DD+) and (DD-) signals at Point Y allow for a triangle in price (dashed lines). Price breaks this triangle to the downside, past Point Y. The recent out-of-proportion rise in the RSI will probably result in another (DD-) signal, forming around Point Z'. In the short distance that is left for the RSI to reach Point Z', I do not expect price to rise above \$54. This is the Lighthouse level for the (DD-) signal. We can expect a new (DD-) in this time frame, with \$54 as a resistance level.

If this (DD-) signal takes effect at Point Z', the hourly RSI will reverse down before rising further. In this respect, the 15-minute chart provides an early warning of what is likely to happen in the hourly chart. Price resistance levels are \$54 and \$56. Before the resumption of the rally, the 15-minute RSI must break out to the upside from its descending channel, or the RSI needs to form a (DD+) signal within its new ascending channel X'-Y'-Z' after a shallow price retracement.



**Figure 3.41** 15-Minute LRCX (Chart #2)

The RSI reaches Point Z', while price rallies to the \$54 level. Note that most of the gains in price occur while the RSI is compressed at the upper boundary of its ascending channel, around the 75-level. Another (DD-) signal has *just* formed at Points Y'-Z', well within bullish territory. Next, we need to monitor whether the RSI is going to break out to the upside from Point Z' or a mild decline in the RSI will cause the formation of a (DD+), from which we could see price break above \$54 (on its way to \$56).



**Figure 3.42** 15-Minute LRCX (Chart #3)

Figure 3.42 is the next snapshot in the series of LRCX 15-minute pictures. In the area around Point Z' in the RSI chart, some negative divergence forms. This results in a price violation of the Lighthouse level, while the RSI fails to exceed the upper boundary of the descending channel. This channel is the validity line for the (DD-) signal. As the upward price pressure subsides, the RSI drops in an out-of-proportion way. Its reversal up at Point R' produces a (DD+) signal, in reference to Point Q'. (This was expected in the event the RSI did not break out to the upside at Point Z').

From Point R', the RSI could continue back up to the upper boundary of its ascending channel, taking price to a new high, in the \$56 area. This is the most bullish scenario. This would mean that the RSI in the hourly time frame reverses up and starts climbing to the upper boundary of its descending channel, where it might form a (DD-) if price fails to exceed \$56.

But there is an alternative, less exuberant scenario. In the 15-minute chart, the RSI may continue to the lower boundary of its ascending channel (in the vicinity of Point S'), where it may form a new, more modest (DD+) signal. Line Q'-R'-S' defines a plausible (DD+) reference line, indicating that price is not expected to drop below price level Q. If a line is drawn from (price) Point Q, parallel to earlier (DD+) support lines, we get a good idea of where Point S may be on the price chart.

We do not have to worry about the uptrend unless the RSI drops below its ascending channel. This would invalidate the recent (DD+) signal, telling us that the RSI is unable

to escape from its descending channel (dashed lines). This would mean that the (DD-) signal is taking effect. Note that the lower boundary of the ascending RSI channel, which is the validity line for the (DD+) and the upper boundary of the descending channel, which is the validity line for the (DD-), are converging near the 50-level and forming a potential triangle.

The conclusion of this analysis is that a (DD+) in the 15-minute chart points to higher prices. Expect \$56, then check the hourly RSI for a potential invalidation of the (DD-) signal. Any possible trouble ahead will be signaled by the 15-minute RSI drop below its channel. Prices should not drop below Point Q at \$51.30.



**Figure 3.43** 15-Minute LRCX (Chart #4)

Things move fast in the 15-minute time frame. The RSI violates the tentative (DD+) reference line at Point R', but the general picture develops as expected. The RSI builds a (DD+) along the Line Q-R'-S'. The main point is the RSI is still meandering within its ascending channel. Within this channel, the RSI is on a down-leg inside its sub-channel, approaching Point S'. If the RSI drops to Point S', the price projection made at Line Q-S will prove to be slightly optimistic. Still, an RSI reversal up from Point S' results in the formation of a (DD+) signal.

From Point S' the RSI should climb within a rising sub-channel to the dashed line marked 2, [the upper boundary of the larger scale Channel<sup>2</sup> (descending) that defines the validity limit of the (DD-) at Points Y'-Z']. If the RSI drops below the channel at Point S', the (DD+) will be invalidated and the (DD-) will take effect. On the other hand, if the RSI

breaks out from its descending Channel<sup>2</sup>, the (DD-) will be invalidated; hence the convergence of the RSI reference lines at the 50-level. In the price chart, the contradicting signals will cause the formation of a triangle, but the line Q-S is still tentative.



**Figure 3.44** Hourly LCRX (Chart #5)

It is clear that there is a (DD-) signal at Points X' and Y', while the (DD+) signal is still valid. In price, this results in a triangle slightly larger than in the 15-minute time frame. In this chart, the RSI is nowhere near a reference line indicating a reversal up. Will the upcoming (DD+) signal in the 15-minute chart cause the hourly RSI to reverse up? Or will the hourly RSI continue down to the nearest dotted line, causing the (DD+) signal to fail in the 15-minute time frame? The worst-case scenario would be the latter, with a price drop to \$51.30, [the Lighthouse level of the (DD+) in the 15-minute time frame]. Things will become clearer in the first few hours of the next trading session, as the 15-minute RSI will show its direction. As discussed earlier, if the 15-minute RSI breaks down from the ascending channel, prices will likely decline to the lower edge of the hourly price triangle, around the \$51 price level.



**Figure 3.45** LRCX Price and RSI in the 15-Minute Time Frame (Chart #6)

The RSI picture has changed slightly, as a (DD+) signal forms on the lower boundary of the ascending channel at Point T', where we had previously anticipated Point S'. Line Q'-R'-T' moved, but the general picture did not change. Past the (DD+) signal at Point T', the RSI fails to stay within its ascending sub-channel and even breaks below its ascending channel. In price, this means that the (DD+) support line Q-T broke. The RSI break-down means that a new, less ambitious (DD+) signal will probably form.

This happens at Point S'. This (DD+) signal has a lower price target and the price support line is less steep. In this case, the RSI is signaling that it will leave its ascending channel and continue down. This becomes clearer at Point U', where the RSI fails to break out from its descending sub-channel. We have to assume that the RSI is going to drop back toward Point V', well within bearish territory.

When the RSI drops to the 20-level on November 27<sup>th</sup>, the rebound causes a (DD-) signal at Point Y' and the price decline resumes. Will this scenario be repeated? If the RSI reverses up from Point V', while price stays above \$51.30, we will have a (DD+) signal, but the rebound will lead to the formation of a (DD-). Look at the RSI tops prior to Point U', where we have a timid (DD-) signal within a descending sub-channel (not unlike Point X'). For this picture to turn bullish, we need to see the RSI break out from its descending sub-channel at a minimum. However, even if this happens, there is still the upper boundary of the descending Channel<sup>2</sup> to be overcome.

Remember, the main question: Is the ascending channel just an up-leg within the descending Channel<sup>2</sup>, or is it a new ascending Channel<sup>2</sup>? The RSI break-down at Point S' and the failure at Point U' favor the former scenario, as the down-leg now exceeds the boundaries of the ascending channel. In the price chart, the (DD-) resistance lines from Points Y and X and the most recent (DD+) support line, define a new triangle. My conclusion is that if price drops below the support Line Q-S and the RSI drops below its ascending channel, expect price to drop to \$51.50.

Also note the width of the channels in this picture. The Channel<sup>2</sup> is wider than the Channel Y'-Z', and both are wider than the sub-Channel Q'-T'.



**Figure 3.46** LRCX Hourly (continued from Figure 3.38)

Here, the (DD-) signal at Points X-Y in the 15-minute chart is valid; the (DD+) signal is still valid as well. The rectangles in the price and RSI charts correspond to Points V and V' (respectively) in the 15-minute chart. Note that in this time frame, the target area is still near the 40-level in the RSI. If the RSI rebounds from this area, the existing (DD+) signal remains valid. This could mean the RSI will continue up, within a new ascending Channel<sup>2</sup>.

The recent break-down at Point X' was possibly just a minor setback, where the RSI shifted to a lower gear before starting a new leg up within the larger uptrend. In this perspective, the descending RSI channel is just a transit phase from one ascending Channel<sup>2</sup>, (which hits its limits in mid-October 2006) to a new ascending Channel<sup>2</sup>. If this is the case, the (DD-) signal at Points X-Y will be invalidated by price rising above \$56 and the RSI will need to break out to the upside from the triangle that is building

between the descending line through Point Y' and the potential ascending Channel<sup>2</sup> lower boundary.



**Figure 3.47** 15-Minute LRCX (Chart #7 - continued from Figure 3.45)

There are two clear steps down in the RSI chart, each a failed ascending channel. (These are the pairs of lines labeled 1 and 2). The ascending channel 1 forms high up in bullish territory, so the break down at Point X only takes the RSI down to a lower level for a new run within its ascending channel 2. But as we have seen, the RSI has been unable to escape from the larger-scale descending Channel<sup>2</sup>. So far, the latest ascending channel (2) has only caused the formation of a (DD-) signal inside the descending Channel<sup>2</sup>.

We know where this type of situation leads. If the RSI does not succeed in escaping from its descending Channel<sup>2</sup>, the next stepdown in this RSI cascade (potential ascending channel 3) is going to take the RSI deeper into bearish territory, with more (DD-) signals to come. We need to see the hourly RSI break out to the upside from its descending channel if the rally is to resume.





**Figure 3.49** Hourly LRCX (December 12, 2006)

The RSI reverses upward from the projected target rectangle. In price, the decline stops just short of the rectangle. In this type of RSI analysis, it is easier to project RSI targets than it is to estimate the corresponding price. The rebound of the RSI prevents the (DD-) signal from taking effect and keeps the (DD+) valid. It also indicates that the RSI is traveling within its ascending channel X'-Y'. Viewed within the larger ascending Channel<sup>2</sup>, this means that the RSI is probably starting its up-leg. There will be another test when the RSI reaches the upper boundary of the descending channel around the 60-level, (which it needs, in order to break).

Later, we should see a (DD+) signal appear within this ascending channel X'-Y'. The conclusion is that the (DD+) signals in the hourly and daily time frames are valid, and the (DD-) signal in the hourly time frame has not taken effect. We also know that the RSI has enough room in the daily and hourly time frames for price to reach or exceed the previous highs. A rally to \$56 is expected, when price breaks out from the triangle. Now, let's check the 15-minute time frame for any contradicting signals that could restrict the effect of the hourly (DD+).



**Figure 3.50** 15-Minute LRCX (Chart #8 – continued from Figure 3.47)

Figure 3.50 is the 15-minute LRCX time frame that corresponds to the hourly LRCX chart in Figure 3.49. The RSI has not reached Point V'. In fact, a mild positive divergence is building and the RSI already exceeds the 40-level. The only limiting factor is the apparent RSI Squeeze at the 60-level, along the Line U'-W'. This indicates that the (DD-) signal can still be taken into account.

So far, the weakness in the market has been unable to push the RSI above the 60-level, even in the 15-minute time frame! This situation forces us to reconsider the bullish conclusion that we reached earlier. Namely, in order for the (DD+) signal in the hourly time frame to take effect, the 15-minute RSI needs to break out of the RSI Squeeze first. This means that an apparent price break-out will not suffice. The RSI Squeeze must be broken as well, which will provide an extra tool to avoid being fooled by a false break-out in price.

The RSI needs to break the RSI Squeeze at the 60-level before the rally can resume. This means that the RSI could break out to the upside from its descending Channel<sup>2</sup> in the 15-minute chart. It is important to monitor the RSI behavior around the 60- to 65-levels, as this will provide an indication about the probability of the hourly RSI break-out of its descending channel.



**Figure 3.51** 15-Minute LRCX (Chart #9)

Figure 3.51 reveals the latest developments in the LRCX 15-minute chart. The RSI breaks out above the dotted Line Z' -U' into the next segment and continues its advance to the upper boundary of its descending Channel<sup>2</sup>, breaking the RSI Squeeze. Note that the biggest part of the price rise translates in a negative divergence in the RSI. This is normally a preamble to the formation of a new (DD+) signal because the drop in the RSI (into the close of the session) is markedly out-of-proportion with the drop in price.

It is safe to say that when the RSI reverses up from the rectangle area, another (DD+) signal will form. Also, given the ascending channel, this potential (DD+) will form around the 35-level. A rebound from this level will take the RSI into bullish territory immediately.

Price breaks from the triangle to the upside, but is stopped at the \$54-level. In this case, the good news is that the RSI Squeeze is broken – the bad news is that the RSI is still trapped within its descending Channel<sup>2</sup>. We anticipate the formation of a new (DD+), which should lead to a new break-out attempt in the RSI and a new price test of the \$54 resistance level.



**Figure 3.52** Hourly LRCX (Continued from Figure 3.49)

The hourly chart in Figure 3.49 confirms the 15-minute picture, as it shows that the RSI has not succeeded in escaping from its descending channel. If the scenario in the 15-minute chart unfolds as anticipated, a moderate decline in the hourly RSI will develop before it reverses up, following the formation of a (DD+) signal and an attempt to break out at Point Z'. Since the RSI is trapped in its descending channel, there is a risk that a new (DD-) signal will form at Point Z', (near the RSI 60-level).

The formation of a (DD+) signal in the 15-minute chart will be important, as it is a logical step, leading to the possible RSI break-out in the area around Point Z'. This would also confirm that the hourly RSI is probably on its up-leg within its potential Channel X'-Y'. If the 15-minute RSI chart fails to produce a (DD+), the hourly RSI should drop to the dotted line around the 40-level, while price drops to the \$52 area, [another test of the hourly (DD+) support line]. In this scenario, the hourly RSI will get cornered in a triangle at the 50-level, until it breaks either to the bullish or the bearish side.



**Figure 3.53** 15-Minute LRCX (Chart #10)

A few days have passed since Figure 3.52, and the yo-yo action in the RSI has pushed price up high enough to challenge the \$54 level. But the RSI never broke from its descending channel and it continues its course within the narrowing triangle. The rectangle marks the area where a new (DD+) can be expected to form before the RSI and price attempt another break-out.



**Figure 3.54** LRCX 15-Minute (Chart #11)

The RSI does not reverse upward from the rectangle area in the previous chart. Instead, it breaks down from the triangle and reverses upward from a lower (DD+) reference line S'-T'. Prices take quite a hit, tumbling from 53.50 to 51.50. From Point T', the RSI could resume its climb within its new ascending channel, but now there are (DD-) signals at Points X and Y.

A reversal down into Point U' would send price to new lows. Also, if the RSI is really going to resume its climb, it should be able to break from its descending channel, indicating that we should monitor the RSI behavior when it approaches the area around Point V', where a (DD-) signal will likely form. What does this scenario look like in the hourly chart? I refer to Figure 3.55.



**Figure 3.55.** Hourly LRCX (continued from Figure 3.52)

The RSI has not reversed up from the rectangular area and has reached the lower boundary of its ascending Channel<sup>2</sup>, around 30. This is important because it means that the descending RSI channel Y'-Z' could have been just a transition channel into a new, lower ascending Channel<sup>2</sup>. For this scenario to unfold, the RSI must stay above the Channel<sup>2</sup> boundary. We could accept seeing a W-bottom forming in the RSI, which might cause slightly lower prices before the RSI takes off. The 15-minute RSI chart will give us an early warning if things go wrong. The significance of a potential failure is illustrated in the daily chart in Figure 3.56.



**Figure 3.56** Daily LRCX

The RSI violates the upper boundary of its descending channel, which signals that it may have entered the dotted ascending channel. This could save it from entering bearish territory. The daily RSI reaches the lower boundary of this potential new channel at the dashed line. This corresponds to the Channel<sup>2</sup> in the hourly time frame. This line is also near the 40-level, which means that a break-down in the hourly RSI will tell us that the daily RSI is entering bearish territory, staying within its descending channel. If the daily RSI is to drop to the bottom of its descending channel at the RSI 30-level, a price drop to \$48 is likely, leaving the (DD+) signal intact.

Given the strong uptrend, we should expect the daily RSI to reverse upward. However, if it turns out to be unable to break out from its descending sub-channel, new highs in price will not appear soon. Indeed, as we found in the 15-minute chart, we are likely to see a (DD-) form first.



**Figure 3.57** Hourly EUR/USD (December 15, 2006)

Here is another example of projecting price targets based on the behavior of the RSI. In mid-November, there are contradicting (DD) signals in the RSI, which, in price, result in the triangle formation that is broken to the upside. The explosive price rally and shallow retracement leads to the formation of a (DD+) signal at Points A-B, within the ascending RSI channel. As expected, the rally continues, but the RSI is unable to rise into the next segment within its ascending channel.

Between Points B and C, the RSI drops below the lower boundary and fails to break out again at Point Y, where a mild (DD-) signal is formed. The drop into the bearish zone at Point C confirms that the RSI is traveling within its descending channel, which at Points A-B-C still defines the (DD+) signals. However, the (DD+) signal at Points B and C corresponds to a merely horizontal support line in the price chart, meaning the rally is flattening out.

As price drops below this Lighthouse level, it is clear that even this support line, corresponding to the (DD+) signal at Points A-C, is too steep. This picture clearly illustrates how a descending channel in the RSI, when entering bearish territory, often corresponds to a Head & Shoulders pattern in price. Because the RSI is continuing down within its descending channel, and taking into account that there will be no (DD+) signal at Points C-D or even B-D, we can assume that a next (DD+) signal will be formed in reference to Point A.

If we consider Point A to be the Lighthouse level for the recent rally, a plausible (DD+) reference line can be extrapolated in price. If price rebounds from the rectangle, there will be another (DD+) signal originating in bearish territory. So, this rebound will result in a (DD-) signal, unless the RSI breaks out from its descending channel. We can expect a drop to 1.3000, a weak rebound and a possible (DD-) signal, which will allow us to define a triangle in price.



# CHAPTER FOUR

ADDITIONAL THOUGHTS AND TOOLS



## PART I

### **RSI COMBINED WITH OTHER TECHNICAL ANALYSIS TOOLS**

It would probably require a large volume to describe all of the interesting analysis methods that emerge when different technical analysis tools are combined with the RSI. Although the analysis methods described in this book can be used as the main tool, it would be unwise to disregard other market information readily available in studies on moving averages on price, price trendlines, price support and resistance area, price patterns, volume, Japanese candlesticks, Fibonacci retracement levels, or Elliott Wave counts.

Nearly all of the charts in this book show the RSI graph for the sake of clarity. However, when various indicators point in the same direction, there is a higher probability of success, thus increasing our confidence in trading decisions. Too much analysis may result in confusion and decision paralysis, especially when various competing analysis tools are used together. I recommend that the trader emphasize the system that he knows well, like RSI analysis, using other data to confirm and fine-tune his strategy.

#### **RSI and Price Reference Lines, Moving Averages and Patterns**

Generally speaking, whenever a signal is detected in the RSI charts, corresponding references in the price chart should also exist. If so, they can be used to check the price behavior and confirm the effect of the RSI signal. Thus far in our RSI analysis, we have used the price support and resistance lines [those that connect (DD) reference points in the price chart] to determine when (DD) signals are invalidated. We have also studied triangle and Head & Shoulder formations in price and corresponding RSI charts.

There are conventional price support and resistance lines, which connect recent lows or highs or mark price levels of significant lows or highs. These lines can also be used in reference to the RSI. If you believe that price is going to bounce off a horizontal price support line, (such as a recent break-out level), it may be confirmed by an upward reversal of the RSI, as it reaches the boundary of its channel.

The (DD) Lighthouse levels, which can be used as price support and resistance lines, will not correspond to the conventional support and resistance levels. This is because, in an uptrend, the Lighthouse levels originate from a recent higher low, while conventional support lines originate at a previous top. In a downtrend, the (DD-) Lighthouse level will correspond to a recent lower high, while a conventional resistance line will mark a previous price low. If you see price reverse its course in mid-air, with no conventional support or resistance line in sight, the RSI will often provide the logic behind the price move. This is especially true when price is moving into uncharted territory at record highs or lows.

Similarly, if you watch price moving averages, it pays to correlate the anticipated price move with the RSI picture. A (DD) signal will confirm an anticipated price reversal off of a moving average line. It will also help determine when the moving average line is negated. RSI behavior may confirm the significance of price moving average lines crossing up or down.

### RSI and Japanese Candlesticks

There is also a correlation with the Japanese candlestick interpretation. The candlestick reversal patterns, such as the various Doji formations, Tweezers and Engulfing Patterns, often coincide with (DD) signals in the RSI. A series of Inside Candles points to the formation of a triangle in price and RSI and may be clearly visible in smaller time frames.



**Figure 4.1** Daily SOX

In this chart, we can closely observe the (DD-) signal formed at Points X-Y in the RSI. This (DD-) signal appears after the RSI drops below its triangle (not shown). At Point X, price attempts to rally, but is stopped at the dotted resistance line. The next day’s market action results in a (Tweezers) “bearish engulfing” pattern, as price evidently is unable to rise above resistance and therefore surrenders. A few days later, at Point Y, the shallow upward retracement causes the formation of a (DD-) signal. A Doji candlestick warns of the imminent downward reversal in price.



**Figure 4.2** Daily SOX (expanded)

Figure 4.2 shows the (Tweezers) bearish engulfing pattern and the Doji candlestick in more detail by expanding the circled area from Figure 4.1. Interestingly enough, there is an extra dimension added by correlating various time frames in analyzing candlestick patterns and the Fibonacci method. The question here is: “In which time frame do I need to analyze the candlestick patterns to detect the ‘real’ signals?” This is never clarified by candlestick followers. Shouldn’t there be some kind of “Russian doll” aspect to the candlestick analysis? Wouldn’t it be logical to see a bullish signal in the daily charts repeated in some way in the hourly (or even in the 15-minute) charts? Not necessarily! What if the candlestick patterns generated in the hourly chart contradict the signals generated in the daily chart?



**Figure 4.3** Daily Russell 2000 Index

In the second week of June, there is a Doji-like candlestick (at the arrow), about halfway down on the second leg. This type of candlestick, with its long shadow or wick, normally indicates that the price decline may be over, because price has managed to recover nearly all of its intraday losses. This is a sign of strength. Since the RSI calculation is based on closing price, this giant yo-yo move, ending with a nearly flat close, does not even register in the daily RSI. But it does show in the hourly chart! A pattern that could be considered a bullish candlestick signal, (or just a neutral price behavior, with the daily RSI moving sideways), turns out to be quite a different picture in the hourly chart.



**Figure 4.4** Hourly Russell 2000

The arrow indicates where the intraday price reversal upward occurs. There is a clear Doji candlestick here as well. The yo-yo price action is clearly visible, as it takes several hours to complete. Contrary to the daily chart, the hourly picture has a series of bearish price moves, which affect the RSI calculation as well as the formation of the candlesticks. In fact, in the hourly Russell chart, the intraday price rebound causes the formation of a (DD-) signal, followed by a price drop to its projected target.

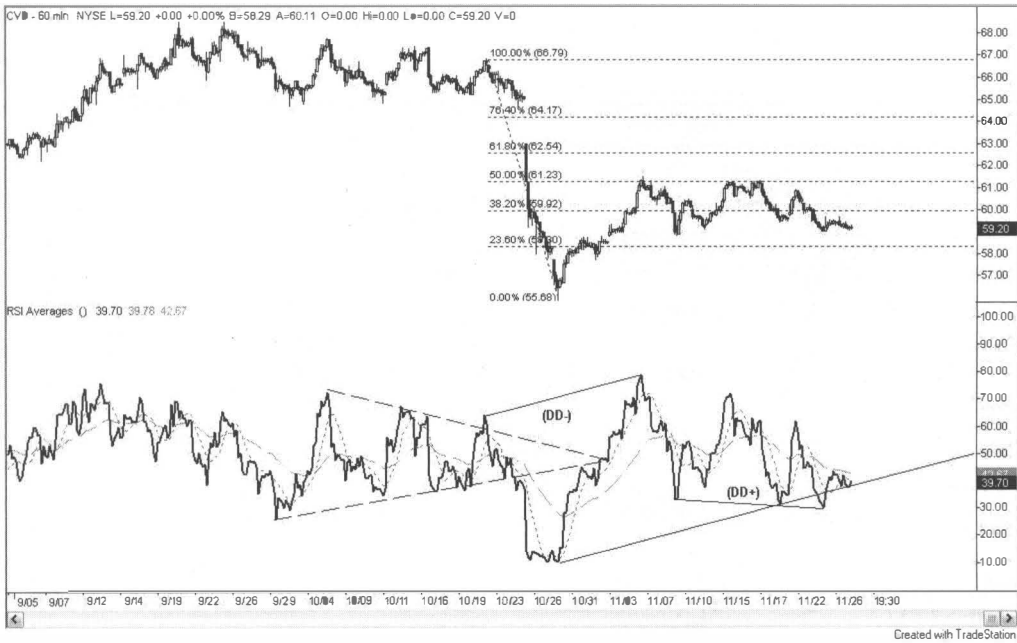
In reality, what could be interpreted as a bullish candlestick signal corresponds to a shallow price retracement up in a bear market. The conclusion is that the Doji candlestick in the daily chart is just a coincidence. The price rebound that caused it happened to start at exactly the right moment. What would the daily candle have looked like had the price rebound started two hours later? The hourly chart tells a better story!

### **RSI and Fibonacci Retracement**

Several books have been written about the use of Fibonacci retracement ratios and how to project future price activity based upon these ratios. In general, if a trend is strong, the occasional counter-trend moves will be shallow. In a weakening trend, the counter-trend moves will become deeper. As a general rule, retracements of less than 38% of the latest price move indicate that the existing trend is still “very strong.” Corrections of up to 50% of the latest price move indicate a “strong” trend. Counter-trend moves of 60% to 75% indicate a “weakening” trend and any retracement of over 75% signals a potentially “failing” trend. If price retraces over 100% of the last price move, it provides an indication that the larger trend may be reversing. Indirectly, this is basically what is used to detect (DD) signals and determine their projected price targets.

In the RSI picture, a retracement is deemed shallow when it causes a (DD) signal; it is assumed that the correction is over and that the trend will resume. *The price target calculation method does not take into account the retracement percentage as an indication of the strength of the (DD) signal.*

This leads me to the conclusion that the method of price target calculation here is not very sophisticated. I do not consider the (DD) price targets as truly accurate price objectives. Rather, I think of these targets as indicative of the magnitude and direction of the forces pulling on the trend (vectors). In my view, the adverse effects of a missed target should not be overstated. The next (DD) signal may hit (or even exceed) its target.



**Figure 4.5** Hourly CVD

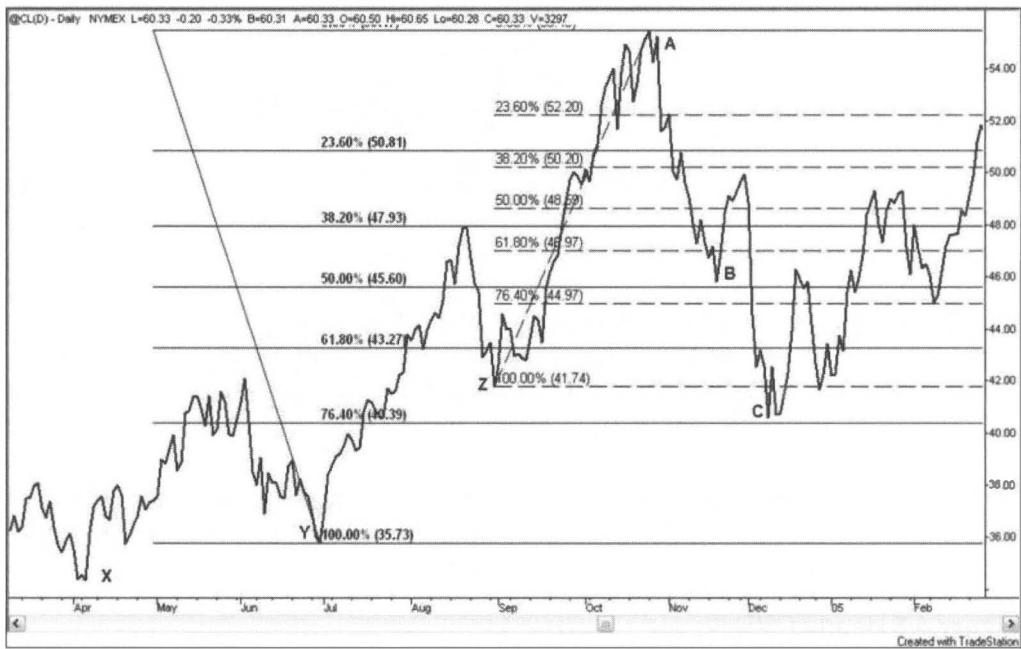
Figure 4.5 illustrates how Fibonacci retracements can be correlated with RSI signals. After a severe drop (note the RSI break-down from the triangle), prices recovered 50% of their losses, hinting at a further drop of about the same size. However, we notice that the RSI fails to drop below its ascending channel and a modest (DD+) signal appears. Another triangle seems to be forming in the RSI. Which way will it break this time?

The equivalent of Time Frame Correlation in the Fibonacci method is the use of clusters of support and resistance lines. The clusters mark the area on the price chart where a significant confluence of multiple Fibonacci ratio reference lines are present. These ratio lines are plotted using several main and intermediate price pivot points, as a reference, in various time frames. This adds some depth to the analysis.

One of the gray areas in Fibonacci analysis occurs when we attempt to interpret price retracements exceeding 100% of the reference price range. In such cases, look at the retracement ratio in reference to the bigger picture using other reference points. Now the question is: “Which reference point should we use?” There will be several minor *and* major price pivot points to choose from. Another question will be “Do we use the price extremes as references? Or do we use the closing price for that time frame?”

If you elect to use closing price, the Fibonacci picture will vary with the analysis of each time frame, although the underlying retracements will be relatively identical. It would be an interesting exercise to test the Fibonacci method using the price reference points that correspond with RSI signal reference points. These points do not always coincide

with obvious price lows or highs that we would otherwise use. Also, this would increase the chances of feeding *significant* price reference points into the Fibonacci grid.



**Figure 4.6** Daily Crude Oil Futures

In this uptrend, there is a downward price retracement from Point A. In an attempt to define a price reversal point, the Fibonacci grid is plotted using Points Z and A as anchor points. In this example, the price line is based on daily closing prices. After a brief rebound from Point B, the price decline resumes into Point C, exceeding the 100% mark of the reference price advance from Points A to Z. Assuming the uptrend is intact, we can see the price decline from Point A to C in the bigger picture.

Using the earlier price low at Point Y as a reference (rather than Point Z), we find that price level C is a 76.40% retracement of the price advance from Point Y to A. This means that the price retracement from Point A to C is relatively shallow and the price rally from Point C will probably reach new highs.

As I am not a Fibonacci expert, I am not sure why Point Y is chosen as the reference point and not Point X or earlier price lows. This takes us back to an earlier discussion when the significance of failing (DD) signals was examined. The question is: “How far back do you regress when studying price retracements exceeding 100% of the initial reference price change? When do you decide that the trend has changed instead?”

In Figure 4.6, the Fibonacci retracement using Points Y and A as reference points seems to make more sense. In this new Fibonacci grid, Point C corresponds to a 76.40% retracement, while at Point B, price rebounds off the 50% retracement line. What does this look like in the RSI chart?



**Figure 4.7** Daily Crude Oil Futures

Figure 4.7 covers a slightly larger time period of the daily crude oil futures data and includes the RSI chart. The Fibonacci retracement lines are plotted in reference to Points Y and A, but the lines have been extended to the left for a better readability of the percentage figures. In the RSI chart, there is a (DD+) reference line W'-X'-Y'-C'. In price, the corresponding price support line is a significant reference line. Looking at the (DD+) signal at Points X' and Y', we can determine the lower boundary Y'-Z' (dashed line) of the associated ascending Channel<sup>2</sup>.

The arrow symbol marks the point where the RSI breaks below this Channel<sup>2</sup>. In this respect, it looks like the RSI drops to Point B' and Point C' within the descending channel W'-C, signaling the transition of the RSI from one ascending Channel<sup>2</sup> to a new ascending Channel<sup>2</sup>, starting at a lower level. But the price drop to Point B is deep enough to cause the formation of a (DD-) signal in the RSI chart.

At the same time, there is a (DD+) signal at Points Z' and B'. This casts a different light on the Fibonacci picture, telling us that the price retracement to Point B is shallow and a rally should be expected, (this will take prices higher by 80% to 100% of the previous price rise from Point Y to A).

The conflicting (DD) signals allow us to define a triangle in the price chart. When price breaks below the triangle support line Z-B, and below the 50% retracement line, we know that the (DD-) signal is taking effect, invalidating the (DD+) signal as price drops

below price Lighthouse level Z. The drop to Point C is deep and the subsequent rebound leads to the formation of another (DD-) signal.

These (DD-) signals' reference lines define the upper boundary of an ascending sub-channel that takes the RSI above the 40-level. These (DD-) signals are eventually invalidated as price rises above the \$51 Lighthouse level. In the price chart, this invalidation corresponds to price negating the formation of a potential right shoulder at the \$50 level.

Contrary to the Fibonacci signal at Point B and Point C, the RSI warns us that a resumption of the rally is not so obvious. Had the second (DD-) signal past Point C' taken effect at the end of January 2005, price would have broken the support line in the vicinity of Point D. Therefore, a drop to the \$36 level, [the (DD+) Lighthouse level], would have been more likely.

### **RSI and Elliott Wave Analysis**

I am convinced that a combination of these analysis methods will lead to excellent results. Because I am not an Elliott Wave expert, I am not in a position to test the RSI/ Elliott Wave correlation with confidence. But it is clear to me that the Elliott Wave count is a useful hypothetical framework within which the RSI analysis can be applied. One should exercise caution, as non-experts can easily misinterpret Elliott Wave counts.

It is necessary to observe large numbers of parameters in different time frames in order to arrive at a plausible high probability Elliott Wave count. In other words, for non-experts, there is plenty of room for error. Still, if you have access to expert Elliott Wave data, you may find it useful to confirm the results of your RSI analysis within the framework of a high probability Elliott Wave hypothesis. For best results, make sure both studies cover similar time frames.



**Figure 4.8** Weekly S&P 500 Index

If we consider the rally of the past four years to be a 5-wave “impulse advance,” then the first four waves could possibly be labeled as shown in Figure 4.8. There has to be a correlation between the different Elliott Wave impulses and the signals generated in the RSI. At the start of a 5-wave rally, isn’t it likely that the RSI should advance into bullish territory, thus invalidating an earlier (DD-) signal and indicating a potential trend reversal? At the start of Wave 3 up (the major up-wave of the pattern), wouldn’t it be logical, or even mandatory, to find a (DD+) signal?

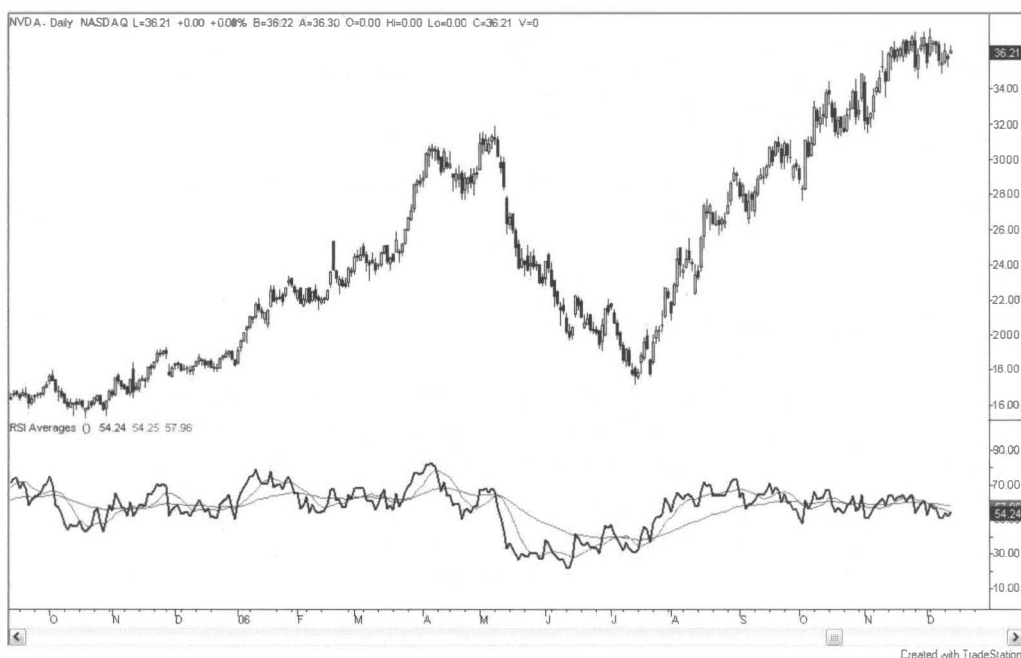
As Wave 3 (up) develops, we would expect to see a series of (DD+) signals developing within an ascending channel, confirming the uptrend. Wave 4 (down) could likely be anticipated by the appearance of a (DD-) signal in the smaller time frame. The resumption of the uptrend in Wave 5 should be marked by another (DD+) signal. After the completion of final Wave 5 (up), Elliott Wave theory says that a retracement down should be expected to the area of the previous Wave 4. In the RSI, this typically corresponds to the RSI break below its Channel<sup>2</sup> after a negative divergence. This is the scenario that unfolds in the SPX chart of Figure 4.8.

## PART II

### PRACTICAL GUIDELINES: PLOTTING RSI CHANNELS

#### Starting from Scratch

Starting from a bare price/RSI chart, what is the best way to detect and plot the relevant RSI channels? Here are some practical guidelines and hints. First of all, we need to make sure that the RSI settings are correct: 14 periods, based on closing prices. It is also important that sufficient data is available for a correct RSI calculation. When analyzing futures charts, we may find that the available price history is too short, providing insufficient data to produce reliable RSI calculations in the larger time frames.



**Figure 4.9** Daily NVDA

When working with charts, be sure that the analysis features are clearly visible. In Figure 4.9, the RSI plot strip is not wide enough, resulting in a flat and featureless RSI landscape. The RSI chart needs to be bigger in relation to the price chart.

It is also important to display the RSI history within a 0 to 100 range, thus avoiding misinterpretation of the RSI level. If the RSI range is set from 30 to 100, the eye will interpret the RSI at 50 (when it is halfway between the bottom and top of the chart). In reality, the RSI is at 65. The difference is huge! The chart needs to be compressed along the time axis, which will help in detecting previous channels from which we can build up the actual RSI picture.



**Figure 4.10** Daily NVDA

Figure 4.10 is a better set-up. The RSI chart covers more than a third of the total image and about three and a half years of data has been compressed into the image. What do we see in this chart? The market is flat to bearish with the RSI value around 20 until July 2004, when we see the start of a bull market all the way to the present day. So after July 2004, we should be able to find a (DD+) signal and define an ascending RSI channel.



**Figure 4.11** pinpoints the trend reversal from bearish to bullish in the price chart and there is a clear (DD+) signal in April of 2005. The low point of the (DD+) signal in the RSI is the reference point for an ascending channel, which runs all the way to May of 2006, when the RSI breaks down at Point X.

The upper boundary of the ascending channel is not well defined in this chart. Let's consider the crossing point of the moving averages to be the starting point. A sizeable price correction to the downside follows, but the uptrend appears to remain intact. Still, the RSI drops to the 20-level in June 2006 before a positive divergence pushes the RSI back above 40 in August 2006.

If the uptrend remains intact, we can consider the RSI drop at Point X to be a shift down into a new ascending channel, starting from a lower level. This allows us to define the lower boundary of a potential new ascending channel, (the lower line running parallel to the main channel). But the drop is so deep that the RSI enters bearish territory and, consequently, there may be a (DD-) signal within the last few months.



**Figure 4.12** Daily NVDA

Figure 4.12 depicts another interpretation of what we learned earlier. If the upper boundary of the potential ascending channel originating at Point A is defined by drawing a parallel line, a (DD-) signal forms in September of 2006. Whenever we find a (DD-) signal, we need to define a descending RSI channel within which a series of (DD-) signals may develop, if the trend change is confirmed. When this line is plotted, it becomes clear that this reference is significant because it defines a negative divergence that has its origins in 2005.

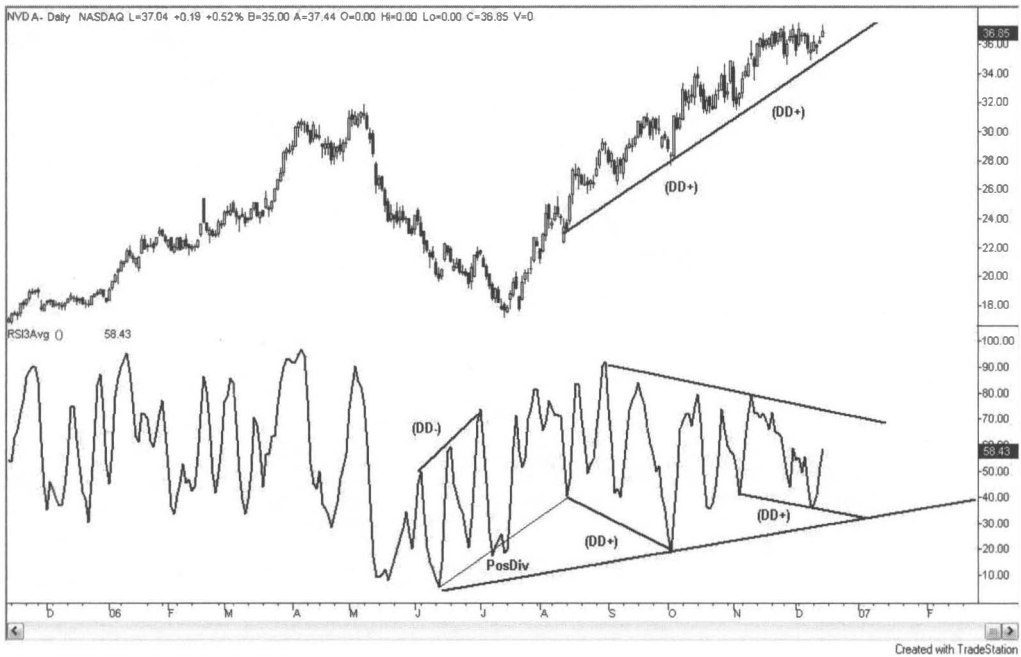
Looking at this, we can determine that a negative divergence has taken the RSI so far down that a first (DD-) signal forms within the descending channel. The upper boundary of the descending channel is a plausible reference line because its parallel lower boundary connects two RSI lows. This puts its origin at the crossing point of the moving averages in August 2005. This channel boundary, up to Point A, defines two important (DD+) signals, which means that there were conflicting valid (DD+) and (DD-) signals in October 2006.

Conflicting signals in the same time frame indicate that the market is in a phase where bullish and bearish forces are in balance, which may lead to a trend change. At this stage, we might want to check the bigger picture in the weekly time frame. The triangle in the price chart illustrates the bull vs. bear fight, which is ultimately won by the bulls.



**Figure 4.13** Daily NVDA

This chart provides a close-up illustration of (relatively) one year of data with reliable reference lines, anchored on solid reference points in the past. This picture is not straightforward. The RSI could be moving either within its descending channel, as the negative divergence has not been broken, or within its ascending channel, following the (DD+) signal at Point A. Consequently, we have two RSI reference lines, one ascending and the other descending, clearly converging symmetrically toward the RSI 50-level.



**Figure 4.14** NVDA Daily Price and RSI(3)

At this point, we could look at the RSI(3) chart, which only covers three periods of data. This near-term RSI study often provides us with rough, easy-to-recognize references that can help illustrate a more detailed RSI(14) picture. The line in the RSI(3) chart is not the RSI itself, but the much smoother 3-period moving average of the RSI(3).

We find traces of a (DD-) signal in June/July of 2006, where the RSI bottoms below 20 in bearish territory, and is followed by a positive divergence. In October and December of 2006, there is a (DD+) signal; it is incomplete, which allows us to plot the lower boundary of an ascending channel. In the price chart, the two (DD+) support lines coincide. This study confirms what we found earlier. In this chart, the negative divergence is significant, resulting in a triangle building on either side of the RSI 50-level. What do these (DD+) signals look like in the RSI(14) chart? Figure 4.15 shows the result:



Figure 4.15 Daily NVDA

Now, it is time to find out how this translates into the hourly RSI picture. Let's switch to the hourly time frame, starting with a suitably compressed hourly chart.



**Figure 4.16** Hourly NVDA

The (DD+) signal that appears at Point B can be easily spotted in the daily chart. This provides us with a base to complete the RSI picture. The associated ascending channel connects the recent RSI lows.



**Figure 4.17** NVDA Hourly

The dashed parallel line defines the upper boundary of the ascending channel, within which the recent (DD+) signals have been building. Now, it becomes obvious that the RSI has been drifting toward the bottom of this channel in the last few weeks, due to a severe negative divergence, which brings us to the next picture.



**Figure 4.18** Hourly NVDA

If a line is plotted parallel to the negative divergence reference line, we are able to define a descending channel. This is a familiar picture. There is the ascending channel defining the bullish elements, [the (DD+) signals], and the descending channel defining the bearish element, (the negative divergence). This results in converging reference lines. In this case, the RSI appears to be zeroing in on the 50-level as the bull vs. bear fight continues.



**Figure 4.19** Hourly NVDA

Since we have detected solid reference points, we can now zoom in on the hourly chart and examine the recent RSI history. (The channels just defined are labeled 1 and 2). The RSI is meandering within the overlapping area, while price has broken the (DD+) support line and is moving sideways.



**Figure 4.20** Hourly NVDA

If the last few days of RSI and price data are viewed closer, we can see that there are conflicting RSI signals whose reference lines define an even more acute RSI triangle, within the converging channels. The RSI is cornered at the 50-level. The triangle becomes visible in the price chart as well. A breakout either way is to be expected.

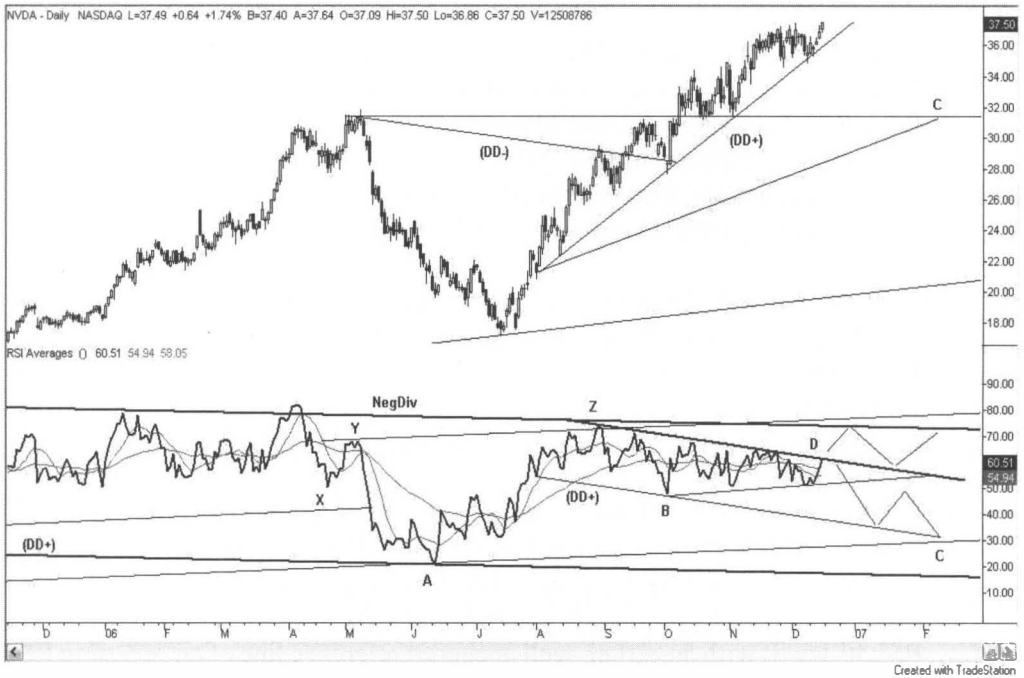
The larger picture is bullish. If the hourly RSI breaks out to the upside, it will need to overcome the negative divergence to continue its rally. If the RSI breaks the triangle to the downside, we can expect the formation of another, more modest (DD+) signal within the ascending channel. However, should the RSI drop below its ascending channel, entering bearish territory, we will see an acceleration of the price correction downward. If this were correlated with the daily picture, it would mean that the daily RSI would start its down-leg to the lower boundary of its ascending channel, where a new (DD+) could be formed at Point C.

Point C is situated around 30 in the daily chart; as the Lighthouse price level for a (DD+) signal at Point C is \$28.30, the price drop in this scenario could be considerable! When will we know that this scenario is *not* unfolding? When the hourly RSI breaks out to the upside *and* breaks the negative divergence. This would mean that the daily RSI is reversing up from the 54-level, taking price to new highs (as it has headroom to rise all the way to the 70-level, which is the upper boundary of its ascending channel).



**Figure 4.21** Hourly NVDA

This hourly chart shows the next stage in the NVDA story. The RSI breaks out from its triangle to the upside and reaches the negative divergence reference line. As the RSI break-out is to the upside, it looks like the ascending channel is now quite significant, so we can highlight it in the chart. Still, we also need to see the RSI break the negative divergence because that will mean that the daily RSI is not starting its down-leg just yet.



**Figure 4.22** Daily NVDA

Now, let's take another look at the daily NVDA chart in Figure 4.22. Following the recent reversal up (the break-out in the hourly RSI), the RSI has reached Line Z-D, which defines a severe negative divergence. This could be considered a down-leg (descending sub-channel) that takes the RSI down to Point C. If the RSI manages to break-out at Point D, it will have headroom to rise to the 70-level, where it will face the even larger long-term negative divergence.

This would mean that the negative divergence along the Line Z-D has not pushed the RSI into bearish territory, but has merely caused the formation of a (DD+) signal while price has kept rising. An RSI breakout at Point D will see price rally in an explosive way as the RSI rises into the next segment. This RSI break-out, if it materializes, will first be clearly visible in the hourly chart.

## Recap: Plotting RSI Channels

RSI channel boundaries are defined by:

- Lines running through (DD-) or (DD+) signal reference points
- Price/RSI divergence reference lines
- Lines connecting obvious RSI extremities
- Lines running parallel to the abovementioned
- Lines running parallel to channels established previously

If in doubt about which of the candidate channel reference lines to use:

- Check the other time frames for corresponding channel reference points
- Check the RSI(3) chart for obvious (DD) reference points and transfer those to the RSI(14) picture
- Give preference to the line whose parallel defines a meaningful channel boundary on the opposite side
- Use the reference line that originates on or closest to the crossing point of the 9-period simple moving average (SMA) and 45-period exponential moving average (EMA) lines in the RSI
- If one of the candidate lines is symmetrically converging (in reference to the RSI 50-level) with an earlier, well anchored reference line of an opposing RSI channel (of the same size), then this reference line is to be given preference
- Horizontal channels are not an option

Anytime a descending channel is defined by connecting two (DD+) reference points in the RSI, an ascending Channel<sup>2</sup> should be plotted as well, whose lower boundary is the signal's "validity line," running through the most recent (DD+) reference point. The typically bullish picture is a series of (DD+) segments or channels inside an ascending Channel<sup>2</sup>.

Anytime the ascending channel is defined by connecting two (DD-) reference points in the RSI, a descending Channel<sup>2</sup> should be plotted as well. The upper boundary is the signal's validity line, running through the most recent (DD-) reference point. The typically bearish picture is a series of (DD-) segments or channels inside a descending Channel<sup>2</sup>.

When the RSI is moving within an unusually narrow range, (that is markedly steeper than the established channels or Channel<sup>2</sup>), assume that the RSI is moving within a temporary sub-channel that will be broken as the RSI returns to normal channel boundaries.

# **CHAPTER FIVE**

REAL-TIME APPLICATION



## PART I

### DRUG INDEX (\$DRG.X)

Beginning January 4, 2007, we track a stock sector index that is not as clearly bullish as the main indices, such as Dow 30, S&P 500, NASDAQ, SOX and XOI. [I selected the DRG Index (pharmaceuticals) because it has been in a consolidation phase for quite some time]. In this case study, we want to begin with naked charts and practice identifying RSI signals, plotting the RSI channels and correlating the signals in different time frames. This method should allow us to formulate a probable scenario for the near future. Let's start with the big picture in the weekly time frame.



**Figure 5.1** Weekly DRG

In Figure 5.1, we should first make sure that enough data is available for a correct RSI calculation. We should also compress the picture in order to make the RSI features clearly visible on the chart. In mid-2002, there is a price rebound after a deep decline. From 2003 to the end of the chart, price moves sideways, onto “slightly higher.”



**Figure 5.2** Weekly DRG

Figure 5.2 shows the RSI scenario leading to the steep market drop in 2002. The market trend is up, but the RSI is traveling in a descending channel, showing negative divergence. The lower boundary of this channel is anchored on (DD+) signals. 2001 is characterized by an RSI Squeeze at a value of 54, (hardly a typical level of a bull market!). At Point X, the RSI surrenders, dropping below the lower boundary of its ascending Channel<sup>2</sup>, cascading deep into bearish territory. This is the type of scenario that leads to an RSI range-shift from the bullish range, between 40 and 80, to bearish, between 20 and 60.



**Figure 5.3** Weekly DRG

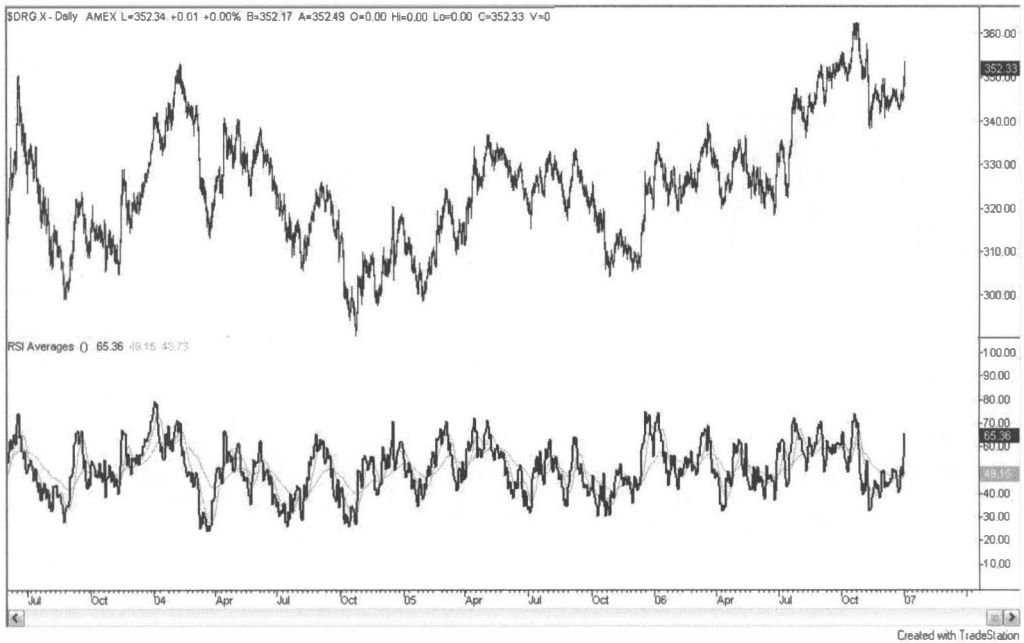
The rebound at Point A forms a (DD+) signal, but its origin lies deep in bearish territory. Consequently, the formation of a (DD-) signal is expected. The ascending RSI channel, starting at Point A', is defined by a (DD-) signal at its upper boundary. In 2003, it becomes apparent that the range-shift in the RSI is not materializing, as the RSI manages to reach 70. The RSI reversal upward at Point C' confirms that the RSI is continuing its course in its ascending channel. A (DD+) signal appears within this channel at Point C'. The Line A'-C' defines the limit of the validity of this signal. In 2005 and 2006, the RSI advances within this channel, exceeding the 40-level.



**Figure 5.4** Weekly DRG (continued)

There is a (DD+) signal at Points B' and C', but the price action following this signal is certainly less than convincing. At Point Z', the RSI fails to jump into the next segment, resulting in a (DD-) signal at Points Y'-Z'. At Point E', the RSI reverses upward from the channel bottom, while staying above 40. There is a (DD+) signal at Points D' and E'.

These conflicting signals are typical of an indecisive market. In the price chart, the support and resistance lines D-E and Y-Z define a triangle. In the RSI, a triangle is detected as well, centered on 50. The arrow marks the point where the RSI breaks out from this triangle. The RSI is apparently making its way into the next segment after all. Conclusion: After a transition phase, the weekly picture is turning bullish. The RSI needs to stay above Line A'-C'-E'; the (DD-) with the Lighthouse resistance level is at 400.



**Figure 5.5** Daily DRG

Figure 5.5 is a naked daily DRG chart covering data from the last three years. The weekly chart provides clues as to where the (DD) signals, in this daily chart, should be found. There is a price low in October 2004. From that point on, prices rally.



**Figure 5.6** Daily DRG

Figure 5.6 shows the ascending RSI channel, which is defined by a (DD-) signal at the top of the channel and severe positive divergence defining its lower edge for most of 2004. In 2005, a first (DD+) appears. The conflicting (DD) signals define a price triangle. As the RSI stays within its ascending channel, the (DD-) signal does not take effect and another (DD+) forms in April 2006.

The most recent signal is a (DD+) signal at Points A' and B' with a price target of 383. The corresponding support line in the price chart is extremely steep. Point Q marks the point where price has broken above the (DD-) Lighthouse level, which is now a support level. We should note that the RSI violates the channel bottom at Point B'; this may indicate that the RSI is on the verge of starting a descending channel. This is not unlikely, as there is a negative divergence already building.

Conclusion: The daily picture is bullish, as there are consecutive (DD+) signals within an ascending channel. Strong price support exists at 340. However, the RSI must jump into the next segment soon. If this fails, the RSI may form a descending channel, [the formation of a new (DD+) signal with a less ambitious price support line]. This scenario indicates that price may drop to the 340-level before resuming the rally to new highs; both weekly and daily vectors point higher.



**Figure 5.7** Daily DRG with 3-day simple moving average of RSI(3)

Let's turn to the RSI(3) for a quick cross-check. Here, the ascending channel can be seen with consecutive (DD+) signals. The only negative element is that the RSI(3) fails to exceed 80 within the last two months. This confirms our earlier concerns about the negative divergence. It is possible for the RSI to drop to the 20-level before a new attempt at breaking above the 80-level.



**Figure 5.8** Hourly DRG

Now, we can turn our attention to the hourly time frame. The RSI generally meanders in the range of 20 to 80, but in the last few weeks the value manages to maintain at above 40. The (DD+) signal is still valid; it coincides with the most recent signal in the daily chart. This (DD+) signal defines the lower boundary of a descending channel while a negative divergence defines its upper boundary. We now have a close-up picture of what should be monitored: the break-out of the RSI from the negative divergence. Apparently, the RSI has chosen to go up within its new ascending channel; this channel also features a (DD-) signal.

We need to see a more convincing RSI break-out before we can conclude that the RSI is breaking out of the triangle to the upside. A logical RSI move would be a drop to the lower boundary of the ascending channel first, where a reversal up would cause the formation of a (DD+) signal if price remains above 345. This is the preferred scenario.

**Conclusion:** The daily and weekly vectors point up. Expect price to drop to the 340–345 area before it continues its advance. This scenario will become invalid when the hourly RSI breaks below its ascending channel. If the hourly (DD+) signal is invalidated, we may see a price drop to the (DD+) Lighthouse around 330. In other words, if the hourly RSI does not succeed in breaking out to the upside, it will stay within its descending channel. If this happens, it will eventually drop into bearish territory. In the price chart, this typically results in the formation of a Head & Shoulders pattern. The (DD-) Lighthouse level at 357 may be the upper price level for the right-hand shoulder, (which may now be building). Given the main uptrend, our strategy should be to look for an opportunity to go long when price rebounds from 345 *and* a (DD+) signal is created in the hourly time frame.



**Figure 5.9** Hourly DRG (January 5, 2007)

Price has declined modestly and the RSI has dropped back from the top of its descending channel. I have lowered the RSI reference line X-Y; this is a line from which the RSI has been reversing in the recent past. Also, Line X-Y defines a (DD-) signal.

As the hourly RSI fails to break out from its descending channel, the RSI forms a (DD-) signal within a descending channel; a bearish scenario. On the other hand, the (DD+) signal is still valid. This allows us to define a triangle in the price chart. Note that the (DD-) signal forms at 75, which is a relatively high RSI level. This means that the next RSI drop should logically lead to the formation of a (DD+) signal within the ascending channel at the 35-level. Conclusion: The preferred scenario still stands. Expect a price drop to the lower edge of the price triangle. A price rebound should cause the formation of an hourly (DD+) signal. How does this translate in the daily DRG chart?



**Figure 5.10** Daily DRG

The downward RSI reversal at Point Y' makes it clear that the RSI may travel within the descending channel defined by the (DD+) reference line A'-B'. Reference line X'-Y' also defines a (DD-) signal in the daily time frame. It should be noted that Point Y' is near the 65-level. The reference lines of the conflicting (DD) signals result in price triangle. For now, we can consider the new RSI Channel X'-Y' to be a steep sub-channel, corresponding to the ascending channel discussed in the hourly DRG chart.

Another interesting point is that the RSI moving averages cross to the upside, which could provide support for the RSI. Conclusion: The preferred scenario stands. The RSI is expected to drop to its 9-day moving average before reversing up. However, the RSI must stay within its ascending sub-channel if the rally is to continue. We expect a further price drop with a rebound off of the lower edge of the triangle. If this causes the formation of a (DD+) signal in the hourly time frame, we may consider taking a long position in DRG.



**Figure 5.11** Daily DRG (January 8, 2007)

The DRG closing price is lower, but is far from the lows of the day. The RSI reaches the crossing point of its moving averages and may find support at this level.



**Figure 5.12** Hourly DRG

This is the price rebound toward the end of the trading session. The RSI bounces off the potential (DD+) reference line, but the signal is not complete at this point. A signal would be more solid if it were to form on or near the lower boundary of the ascending channel. Expect price to move sideways-to-up, while the RSI completes the (DD+) signal near the lower edge of its ascending channel.



**Figure 5.13** Hourly DRG (January 11, 2007)

After some minor up/down moves, the RSI pops up. This activity is compatible with our anticipated scenario, [the formation of a (DD+) signal on the potential (DD+) reference line in the RSI].



**Figure 5.14** Daily DRG (January 11, 2007)

In Figure 5.14, the RSI finds support on the moving averages and reverses to the upside. From here, we could expect the RSI to rise to the top of its (potential) descending channel, thus defining a severe negative price/RSI divergence. Will the RSI be able to break this divergence? In order to do so, another (DD+) signal in the hourly chart is required.



**Figure 5.15** Hourly DRG (January 18, 2007)

We expect the RSI to drop to Point Z, where a (DD+) signal should form. Instead, the RSI continues up and breaks out from its descending channel, signaling that the ascending channel, (defined by Line X-Y) is in force. This will mean that a future (DD+) signal at Point Z, when it materializes, will form near 40 in an ascending channel, making the picture quite bullish.

The RSI channel top X-Y still defines a (DD-) signal, but the RSI is reaching 80 and a (DD+) signal is forming. Price breaks the triangle to the upside and reaches the (DD-) Lighthouse level at 357. Assuming that a (DD+) will form at Point Z, we know that price will not be lower than 342, the Lighthouse level of the (DD+). This means we could have taken a long position in DRG, when price broke the triangle at 353. However, it is safer to wait until price breaks the (DD-) Lighthouse level.



**Figure 5.16** Daily DRG (January 18, 2007)

The RSI rebounds off the 9-day simple moving average and reaches the top of the ascending sub-channel X'-Y', violating the upper boundary of its potential descending channel. Note that the daily RSI is now well within bullish territory.



**Figure 5.17** Hourly DRG (January 19, 2007)

Price rallies above the (DD-) Lighthouse level intraday. A long position is entered at 357. The RSI pushes the top of its ascending channel around the 85-level. The embryonic (DD+) signal allows us to define a support line in the price chart. We know that the rally is safe, as long as the RSI remains within its ascending channel. The RSI will form the (DD+) signal at Point Z with price near the price support line (in the 352 area). For now, let's place the stop-loss order at 349.



**Figure 5.18** DRG Hourly (January 23, 2007)

Intraday prices nearly reach the previous high at 362, before retracing down. Look at the effect this minor price move has on the RSI. From Point W, where the RSI is near 90, the RSI drops to 52. At this rate, the RSI can be expected to reach Point Z with price around 355. The important point is that the formation of a new (DD+) signal becomes more likely each hour. More importantly, if this scenario is to become a reality, the RSI must reverse upward at Point Z.



**Figure 5.19** Hourly DRG (January 24, 2007)

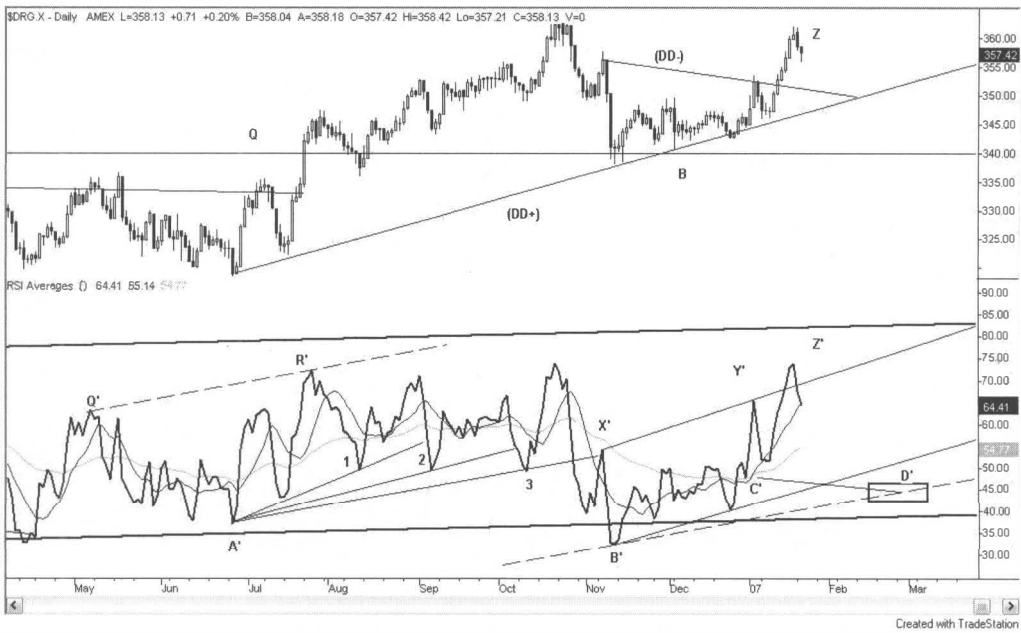
The mild price retracement down extends, causing the RSI to reach the (DD+) reference line (where it reverses up). Price does not break below the Lighthouse level at 356. This resistance level offers support. The (DD+) signal is almost confirmed, but the RSI may still drop to the lower boundary of its ascending channel at Point Z'. The long position is maintained, with the stop-loss order resting at 349, as long as the RSI remains within its ascending channel.



**Figure 5.20** Daily DRG (January 24, 2007)

Figure 5.20 indicates that the RSI is breaking out from its potential descending channel. If this is correlated with the latest (DD+) signal, at Points A' and B', the RSI appears to be slipping into the next RSI segment within its ascending channel. This also means that the violation of the ascending channel at Point B' should have no adverse effects.

Normally, such violations would indicate that the RSI is leaving its ascending channel and continuing downward along Line A'-B'. With values above 70, the RSI advance into Point Z' points to a more bullish perspective of the market, but the RSI sub-channel X'-Y' is too steep for comfort. We need to be aware that the RSI will drop below this sub-channel at some point. The hourly RSI provides us with an early warning.



**Figure 5.21** Daily DRG (January 24, 2007)

Again, the sub-channel X'-Y' is too steep for comfort. What does this mean? This channel is temporary and the RSI will likely return to a more acceptable channel slope. What is "acceptable"? Look back at the previous phase in the uptrend. From Point A', the RSI starts in a steep sub-channel along the line connecting Point A' and Point 1. This path is too ambitious; the RSI breaks below this line and drops to Point 2, defining a less steep channel along Line A'-2. This line is violated and another channel bottom is defined along Line A'-3.

If Points 1, 2 and 3 are connected, you get a (DD+) signal within an ascending channel. Line A'-3 proves to be the lower boundary of a significant ascending channel, as it was broken prior to Point X', thus signaling the start of a sizeable correction downward. Line A'-3 can be labeled "acceptable." If a parallel (dashed) line is plotted through Point B', we get an impression of what could be an acceptable lower boundary for this channel.

Now, let's simulate an RSI drop to this line from Point Z' into the rectangle at Point D'. This is still above 40, so we may expect the formation of a (DD+) signal when the RSI reverses up at Point D'. A logical origin for this imaginary (DD+) signal would be the crossing of the moving averages at Point C'. In our scenario, this means that price can be expected *not* to drop below 345, (the price level corresponding to Point C' in the RSI). This imaginary scenario provides an idea of what to expect when things turn sour. If the RSI should drop below the Line B'-D', all bets are off.



**Figure 5.22** Hourly DRG (January 25, 2007)

The RSI continues up from the area at Point Z', while price advances further, after its bounce off the (DD-) Lighthouse level. I have adjusted the upper boundary of the ascending RSI channel, connecting Points X and W more accurately. The adjusted parallel lower boundary is now closer to Point Z', so the recent (DD+) signal can be considered complete, having formed near the channel bottom. The rally is safe as long as the RSI stays within its ascending channel.



**Figure 5.23** Daily DRG (January 25, 2007)

The RSI bounces off of the 9-day simple moving average again, as shown by the arrow. This reversal up causes a FAST (DD+) signal at the 65-level, coinciding with the (DD+) signal at 40 in the hourly chart. We continue to maintain the long position initiated at 356.



**Figure 5.24** Hourly DRG (January 26, 2006)

The RSI drops back to Point Z'. This is not a problem; the ascending channel remains intact. Price drops back to test support once again and can be expected to reverse upward. However, we should prepare to exit our long position when the RSI drops out of its channel, which could possibly occur in the next session.



**Figure 5.25** Daily DRG (January 26, 2007)

We now see disappointing price action. The gains from the previous day were lost and we can see that yesterday's price drop resulted in a Bearish Engulfing Candlestick and Tweezers patterns, which usually points to continued market weakness. The RSI drops below its 9-day moving average and we need to monitor whether it will rebound from its sub-channel Line B'-E' or from its "acceptable" channel boundary B'-D'. It looks likely that a further price decline is in the cards to the 350-345 area when yesterday's price low is broken. We intend to stick to our trade plan to exit our long DRG position when the hourly RSI breaks the boundary of the ascending channel.



**Figure 5.26** Intraday Hourly DRG (January 26, 2007)

The DRG opens lower, and, as we have discussed, the long position is exited.



**Figure 5.27** Hourly DRG (January 27, 2007)

At the close of the session, the RSI rebounds off the next lower (DD+) reference line at Point A', which is near an RSI value of 25. The dashed line through Point A' is the potential lower boundary of a new ascending channel. A reversal down of the RSI at this level will result in lower prices. The formation of a W-pattern in the RSI at Point A' could cause price to drop to 348.



Figure 5.28 Daily DRG (January 27, 2007)

The RSI drops below its 45-day moving averages. We need to wait for the formation of a (DD+) signal somewhere on the Line C'-D'. This means slightly lower prices.



**Figure 5.29** Hourly DRG (January 27, 2007 - revised)

This is the revised logic for the RSI picture studied earlier (in Figure 5.27). Here is the reasoning for the change: At Point W, the RSI breaks from its descending channel. This is an indication that a new ascending channel could be building. The channel we have been concentrating on so far is the ascending channel, or sub-channel, defined by Lines X-W and U-Z'.

Now, the RSI drops below this channel to Point A', where a new (DD+) signal forms. What does this mean? If the width of the descending channel is measured and compared to the width of the ascending channel X-W-U-Z', we notice that this recent channel is not sized for an equivalent ascending channel.

So, it must be a sub-channel; but a sub-channel within what? It is not within the existing descending channel because it broke out at Point W. It must be within a new ascending channel, which becomes clear as the RSI drops to Point A'.



**Figure 5.30** Hourly DRG (January 27, 2007, revised)

Channel V-W-U-A' has a width equal to the width of the descending channel it replaces. In this instance, we have a (DD+) signal in an ascending channel, which is bullish. The only bearish element is that the hourly (DD+) signal forms in bearish territory around 25. In the daily chart, the RSI is still above 50. The main reference line is the channel boundary U-A'.

If the RSI builds a W-pattern on this line, we should see slightly lower prices. Logically, the RSI should rise (approximately) to the 75-level, meaning a higher price high is in the making. Why the 75-level? If a line is plotted through Point W, parallel to the (DD+) reference line ending at Point A', we have defined the upper boundary at around the 75-level of a descending sub-channel within the ascending channel.



**Figure 5.31** Hourly DRG (January 31, 2006)

The RSI moves higher from Point A', but since this is still bearish territory, price merely moves sideways. In fact, the market indecision causes the formation of a small triangle in price, visible in the 15-minute chart (not shown). In the daily chart, the inside day candlestick within the range of the previous day's candle reflects this activity. The Doji-like candle features upper and lower shadows (or wicks), indicating that price has been fluctuating without exceeding the previous day's high or low, resulting in the triangle (in the smaller time frame).



**Figure 5.32** Daily DRG (January 31, 2007)

The RSI holds above 50, but has yet to reach the Line B'-E', which would be a solid reference for a (DD+) signal and the subsequent rebound. Yesterday's intraday triangle should be expected to break to the downside because triangles are considered "continuation" patterns. This means that the hourly RSI will likely drop back to Line U-A', pushing prices to a new low. In the daily RSI, this means the RSI hits Line B'-E', which would be a logical scenario.



**Figure 5.33** Hourly DRG (February 2, 2007)

Price initially breaks to the downside from the small triangle in price, but a Fed announcement “lifts all boats” and a rally follows. Price bounces off the (DD+) support line around 352. The rally propels price up to the (DD-) Lighthouse reference level. In the RSI, this causes a potential (DD-) signal at Points Q'-R', but the (DD-) signal seems to be incomplete, as it is not building in the area around Point S'. This means that the RSI may have another down/up sequence before it reaches Point S'.

Notice that Point S' is at 75 (in bullish territory). Given this fact, I doubt that price will be lower than 360. This is the price level corresponding to Point Q' in the RSI when the RSI finally hits Points S'. As a result, there may not be a (DD-) signal at Points S'.

In this perspective, a reversal of the RSI down from Point R' should result in a price drop to the support line (in the 353 area) before we get another rebound. Again, a first sign of trouble will be an RSI drop below Line U-A'.



**Figure 5.34** Daily DRG (February 2, 2007)

The RSI continues up after its reversal at Point F'. This means that we have a (DD+) signal at Point F', on Line F'-G', originating at the RSI extremity near Point C'. This corresponds to a price level of 347.60; price will not drop below this level as long as the (DD+) remains valid.

Reference line C'-D' is a tentative reference line where we could expect the formation of a (DD+) signal. I plot this line from Point C', as this is where the moving averages cross up. Now, it appears that the expected (DD+) signal is building on Line F'-G'. A continuation of the rally is certainly a possibility, but this signal looks to be incomplete. Additionally, both moving averages are negative and are about to cross near Point H'. Given the potential of a (DD-) signal in the hourly chart, we remain cautious in our approach.



**Figure 5.35** Hourly DRG (February 6, 2007)

The RSI reverses downward from Point R', producing a (DD-) signal. In the price chart, the conflicting (DD+) and (DD-) reference lines define a triangle. The indecisive bull-bear fight causes the RSI to yo-yo around the RSI 50-level.



Figure 5.36 Hourly DRG (February 8, 2007)

Note that price is still moving within the triangle. We still have a valid (DD+) signal at Point A' and a valid (DD-) signal at Points Q'-R'.



**Figure 5.37** Daily DRG (February 8, 2007)

The RSI reverses downward from Point H', (where the moving averages cross). A further decline to Point J' seems likely. Given the (DD-) signal in the hourly time frame: will the RSI reverse upward from Line B'-J'? Or will it continue downward to Line B'-G'? Let's wait and see which way the triangle breaks. Note that the origin of the potential (DD+) signal on Line F'-J' is different than those we have seen in the hourly time frame.



**Figure 5.38** Hourly DRG (February 8, 2007 - revised)

In the hourly chart, if the potential (DD+) reference line (detected in the daily chart) is plotted, we end up with above picture. Line C'-A' is the new (DD+) reference line. Line C'-A' is steep, which indicates that it is probably a sub-channel, as an RSI downleg within the ascending channel.

In the price chart, the corresponding support line nearly coincides with the existing one. (Parallel) Line W-R' is the validity line for the (DD-) signal at Points Q' and R'. Line A'-B', which is parallel to Q'-R', is the validity reference line for the (DD+) at Points C'-A'.

In short, a triangle is building at the RSI value of 50. If Line W-R'-B' is broken, the (DD-) signal at Points Q'-R' will be invalidated, but another one may form at Point S'. If Line A'-B' is broken, the (DD+) signal will be invalidated and the (DD-) signal could take effect. In this worst-case scenario, the price target for the (DD-) target at Points Q'-R' is:

$$351.70 - (360 - 357.60) = 349.30$$



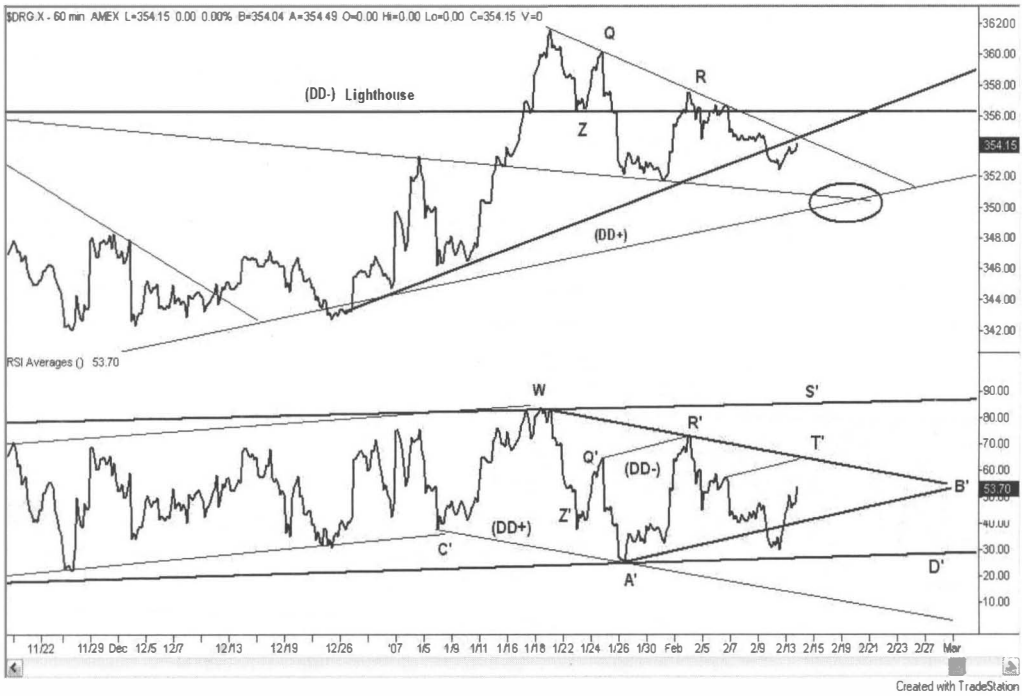
**Figure 5.39** Hourly DRG (February 10, 2007)

At the close of the session, the RSI breaks through Line A'-B'. If the descending sub-channel, W'-R'-C'-A', is in force, the RSI should drop below its ascending channel, entering bearish territory. Given the existence of the (DD-) signal, with its target at 349.30, but with the potential of a new (DD+) signal (as long as price does not drop below 347.60), a realistic price target could be at 350.



**Figure 5.40** Daily DRG (February 10, 2007)

The RSI reaches Point J' on the potential (DD+) reference line F'-J'. A reversal of the RSI to the upside would produce a (DD+) signal here, but the hourly RSI points to a further decline. If the RSI continues down, we will have to wait for a (DD+) to form somewhere on Line B'-D'-G', possibly in reference to Point C'.



**Figure 5.41** Hourly DRG (February 14, 2007)

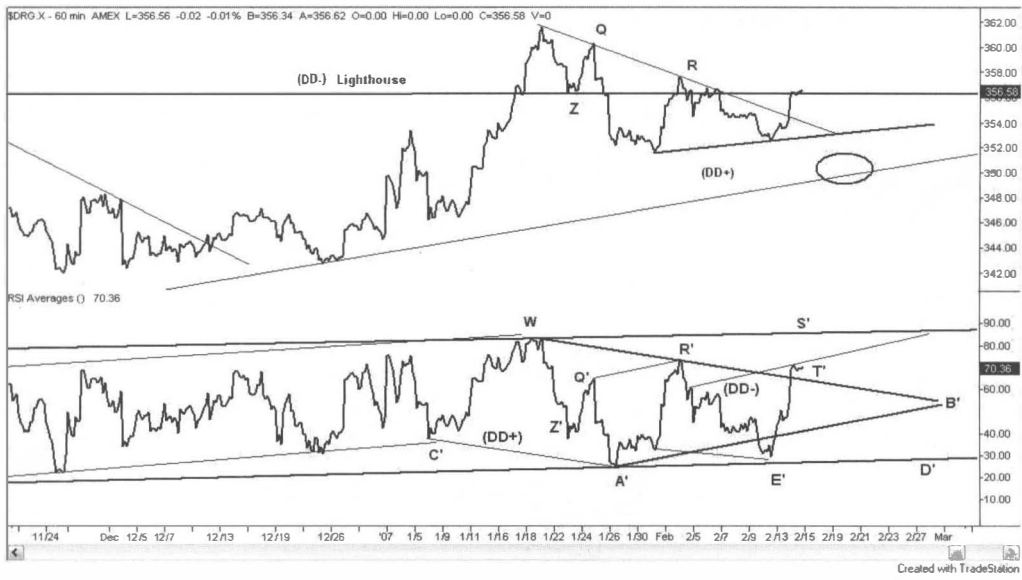
We see the RSI reverse up, within its descending channel. It is clear that a (DD-) signal may form in this channel, if the RSI reverses down at Point T' and price does not exceed 356.



**Figure 5.42** Daily DRG (February 14, 2007)

The reversal up produces a (DD+) signal in the daily chart in Figure 5.42 on Line F' -J' - G'. However, we have noticed the potential for a (DD-) signal in the hourly chart. If we are looking for an opportunity to go long, the (DD-) signal in the hourly time frame must be invalidated first. Price needs to rally above the potential (DD-) Lighthouse level at 356 first.

The RSI moving averages are slightly negative and may cause resistance. An RSI reversal down from the moving averages in this time frame could coincide with the formation of a (DD-) signal in the hourly time frame. Before a long position is taken in DRG, we need to see price rally above 356 *and* the daily RSI must break the moving average resistance. The hourly RSI must break out of its descending channel, thus avoiding or overcoming the potential (DD-) signal.



**Figure 5.43** Hourly DRG (February 15, 2007)

A Fed announcement about weakening inflation propels the markets higher. The RSI breaks Line W-R'-B', causing the formation of a timid (DD-) signal at Point T' and a timid (DD+) signal at Point E', resulting in a positive wedge in price. A price advance from here justifies a long position in DRG, with a stop-loss just below the wedge line.



**Figure 5.44** Daily DRG (February 15, 2007)

Following the formation of a (DD+) signal at Points F'-J', the RSI breaks above the moving averages. Price hits the previous (DD-) Lighthouse resistance line. The rally is safe as long as the RSI remains above Line B'-J'-E'. However, if the RSI breaks below this line, we can expect the indicator to drop to Line B'-D'-G', where it should form another, more modest (DD+) signal.



**Figure 5.45** Hourly DRG (February 23, 2007)

A few days have passed; a downward reversal of the RSI at Point T' gives us reason to amend the analysis of the RSI picture. In the previous hourly chart, a triangle was defined in the RSI, but with no follow through. Now, Line W-T' defines a plausible descending channel with a (DD-) signal at Point T'.

At Point D', the RSI violates boundary Line A'-E' of the ascending channel. This drop effectively invalidates the (DD+) signal at Points F'-E' because price drops below the Lighthouse level of this signal. In short, a potential descending channel exists with a valid (DD-) and an invalid (DD+) signal. This picture is bearish until the RSI manages to break out to the upside from its Channel W'-T'.



**Figure 5.46** Daily DRG (February 23, 2007)

The RSI reverses downward from 60 again, as price is unable to break the resistance level corresponding to the 357 Lighthouse level of the (DD-) signal (originating in Point X'). The RSI drops below Line B'-J'-E', invalidating the (DD+) signal at Points F'-J'. It is expected that the RSI will drop to Line B'-D'-G', where a new, less ambitious (DD+) could form.

This brings us to the earlier hypothetical scenario where we anticipated a (DD+) signal to form in reference to Point C', at the crossing point of the moving averages. Remember, Line B'-D'-G' is plotted as a tentative reference line, parallel to Line 3, because Line B'-D'-E' is too steep for comfort.

It should not be assumed that the RSI breaks Line B'-D'-E'. Rather, a reversal up of the RSI at this point creates a (DD+) signal in reference to Point C'. Given the fact that price reaches a major (DD+) support line, a rebound is likely. If the reversal up materializes, we will be able to adjust and anchor the channel and (DD+) reference lines.

Even if this bullish scenario unfolds, we know that the hourly chart is bearish and the potential hourly (DD-) signal must be invalidated first. In the daily chart, the RSI moving averages cross downward and the RSI sits on the edge of bearish territory. Consequently, we should delay entering a long DRG position until the expected (DD+) signal in the daily chart invalidates the (DD-) signal in the hourly chart.



**Figure 5.47** Weekly DRG (February 23, 2007)

The RSI progresses within ascending Channel C'-E'-F', but fails to rise into the next RSI segment at the arrow symbol and the negative divergence becomes more clear. The recent RSI top reaches a value of 70, which is respectable, but not really convincing in a bullish scenario. Logically, we should see the RSI reverse upward from Point F' where another (DD+) signal should form.

However, if the RSI drops below Line C'-E'-F', we could expect it to drop to the extension of the nearest (DD+) reference at Line D'-E'. This means that price could drop to the area around 330 or 325. The daily and hourly RSI will provide an early indication of where things are headed when Point F' is reached in the weekly chart.



Figure 5.48 Hourly DRG (February 24, 2007)

The RSI continues downward at Point D' before reversing up from the 20-level. Price violates the (DD+) support line at the important support level at 350. The picture is turning bearish. We have to anticipate the formation of another (DD-) signal within the Descending Channel W-R-T'. This points to a lower high in price, unless the RSI breaks out from its descending channel.



**Figure 5.49** Daily DRG (February 27, 2007)

I have adjusted the reference lines C'-D' and B'-D' in the daily chart, as the RSI reverses up. Remember that Line B'-D' is an acceptable lower boundary for a potential ascending channel. It is also the validity limit line of the (DD+) signal at Points C'-D'. Price bounces off the main (DD+) support line. These elements are all bullish, but there is a valid (DD-) signal that will need to be invalidated and another (DD-) in the making in the hourly chart.

The moving averages cross downward, which could prove to be an additional obstacle. In fact, this RSI configuration is not unlike the one witnessed at Point X' in early November 2006. For this reason, I have labeled this area of the chart "X2?"



**Figure 5.50** Hourly DRG (February 28, 2007)

When the RSI reverses down at Point U' in the hourly chart, the third (DD-) signal that was expected does in fact materialize and the subsequent sell-off takes price down over 2.5%. The RSI value is compressed at the 17-level, near the bottom of descending Channel F'-E'-D'. Within this channel, we witness the formation of three (DD-) signals without a valid (DD+) signal. As soon as the selling pressure relaxes, the compressed RSI is going to spring up to the rectangular area, where another (DD-) signal is due to form. Price breaks the triangle to the downside. Let's check the daily chart to see the Lighthouse level for the main (DD+) signal.



**Figure 5.51** Daily DRG (February 28, 2007)

The hourly (DD-) signal takes the upper hand and causes the invalidation of the daily (DD+) signal as the RSI drops below Line B'-D'-G'. The descending Channel A'-B'-E' is in force, as the RSI also violates its ascending channel boundary, invalidating the (DD+) signal at Points A'-B'. There is a potential (DD+) signal in the making at Point E' in relation to Point B'. If this fails, the drop in price could extend to the (DD+) Lighthouse level at Point A (320!).



**Figure 5.52** Weekly DRG (February 28, 2007)

Caution: this week is not over, so we should not jump to conclusions until after the close of the week. Still, this chart illustrates the use of my Time Frame Correlation method. The RSI has reached Point F'. A reversal up from Point F' will produce a (DD+) signal within the ascending Channel<sup>2</sup>, well above the 40-level. This is all bullish.

We have reason to be cautious – inside the ascending Channel<sup>2</sup> C' -E', the RSI fails to break out (shown by the arrow) and the most recent RSI top is situated at 62. In other words, we may see the RSI continue down at Point F' into the rectangle area, where a (DD+) signal could be formed in relation to Point E'. A more likely scenario would be if the RSI were to reverse up from Point F', but this will lead to the formation of a (DD-) signal in the daily time frame.

This daily (DD-) signal could prevent the weekly RSI from breaking out near 60. The subsequent RSI drop will likely be violent and could take the RSI down to the extended Line D' -E', (which could see price at 320). In the daily time frame, we need to monitor the formation of a (DD-) signal and its effects, which will first become visible in the hourly chart.

**PART II****CRUDE OIL FUTURES (CL)**

These days, the general public all over the world watches crude oil prices. Following the Iraq war and the “peak oil” issue, oil prices have exploded upward in the last few years. As we have witnessed a price drop from \$75 to \$50 in the second half of 2006, the question on everybody’s mind is: Will oil prices continue down or resume their uptrend? Let’s start our analysis with the longer-term weekly crude futures chart.



**Figure 5.53** Weekly Crude Oil (January 25, 2007)

Past Point X, the RSI takes a tumble into bearish territory. Point D’ is near the 30-level. The descending channel along Line A’-B’-C’-D’ could be the RSI transition from its earlier ascending channel (dashed lines labeled 1) to a new ascending channel (labeled 2) starting at Point D’. In this scenario, the price rally should resume soon and the RSI could be on its way to the 75-level once again, taking prices to new highs.

If the RSI fails to escape from its descending channel, a Head & Shoulders formation is in the making. Note that the most recent price decline to Point D does not result in a (DD+) signal in reference to Point C, but only in reference to Point B and Point A.

The RSI is in bearish territory, which means that a small bounce in price will send the RSI higher. In this scenario, the RSI would rise to the area around Point Y, where a (DD-) signal will form unless price is above \$74 at that point, which is unlikely. This duality is expressed in the RSI by the building triangle centered on the 50-level. So, while the longer-term price trend is still up, the resumption of the rally is not guaranteed, as a (DD-) signal in the weekly time frame may be overcome in the near future. What is the situation in the daily time frame?



**Figure 5.54** Daily Crude Oil (January 25, 2007)

Like the weekly RSI, the daily RSI moves within a descending channel. Up until September 2006, it is the channel bottom that defines a (DD+). The last (DD+) signal is formed in bearish territory around 30. After the steep price drop to \$57, a mere price consolidation is enough to push the RSI up to 65 in December 2006. Of course, this leads to the formation of a (DD-) signal.

At Point X, the RSI drops below its potential ascending channel and the (DD-) signal takes effect, invalidating the (DD+). In short, the RSI fails at its first attempt to catch an ascending channel, which could have enabled it to escape from its descending channel. The recent price rebound causes the RSI value to jump 30 points higher. It is clear that another (DD-) signal must be in the making.

Let's not forget that a downward reversal of the RSI will immediately send prices lower, (with a vengeance!). With an RSI drop to the 20-level, we will see price reaching new lows, probably around \$46. The price rebound cannot be taken seriously until the RSI takes hold above (at least) the 40-level.



**Figure 5.55** Hourly Crude Oil Futures (January 25, 2007)

Here, we should get an early bear warning. With both the daily and weekly charts in bearish territory, the recent rally looks very fragile. In fact, we have to assume that the price advance is just an upward correction in a bear market. The hourly chart shows the RSI traveling in ascending Channel X-Y-Z-A-B for quite some time.

At its start, Points X and Y define a (DD-) signal within a descending channel, but at Point Z, the RSI breaks out and rises to 80. The Line X-Y-Z still defines a (DD-), but the RSI is in bullish territory, failing to break below its ascending channel. Meanwhile a (DD+) signal appears to be forming while price is breaking the (DD-) resistance line. Note that there is a positive divergence in the chart.

In the price chart, the (DD+) and (DD-) reference lines define a triangle. The price rebound will continue as long as the RSI stays above Line A-B, but we should not forget that this price advance should be considered a retracement up in a bear market, as it will cause the formation of a (DD-) in the daily time frame.

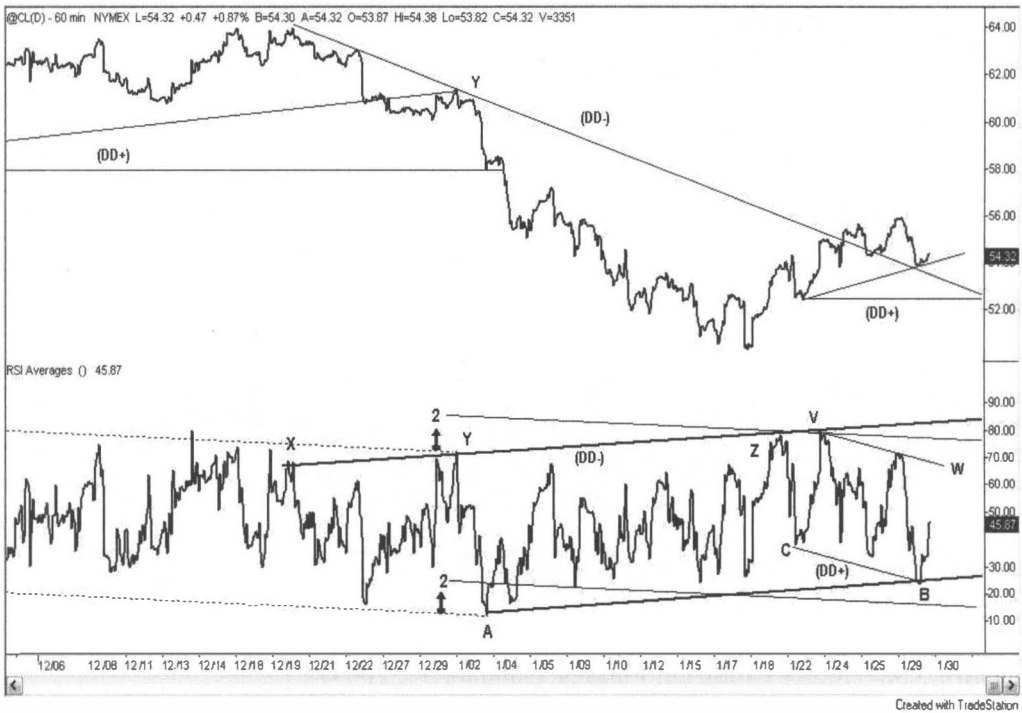
Let's assume that we are looking for an opportunity to short the crude oil market. We should delay our entry until the (DD+) in the hourly chart is invalidated and the RSI drops below Line A-B, possibly after the price retracement up causes the formation of a (DD-) in the daily chart.



**Figure 5.56** Hourly Crude Futures (January 30, 2007)

After a brief price surge to \$56, the moderate price decline causes a deep drop in the RSI. The RSI reversal at Point B means a (DD+) signal at Points C-B within an ascending channel: this is bullish. The corresponding price support line is less steep than the previous one. The only drawback in this scenario is the negative divergence building. We will need to monitor the RSI, to see if it jumps into the next higher RSI segment. If not, it will reverse down from the 60-level for another test of the channel boundary, Line A-B.

The dotted line through Point Y is the upper boundary of the previous descending channel. Technically speaking, we have a (DD-) signal at Points X-Y-Z, so I have plotted a new parallel descending line at Point Z. This line is the mirror image of Line A-B, which promises to become the lower boundary of the new ascending channel. The question is whether the ascending Channel X-Y-Z-A-B is a transition from one descending channel into the next (higher) one, followed by a new price decline or whether it will prove to be the lead-in scenario to the resumption of the long-term uptrend. The bearish scenario means that the RSI will break below Line A-B and will engage in a new descending channel. Moving the previous boundary the same distance as the top was moved from Y to Z can be used to plot the lower boundary of this potential channel.



**Figure 5.57** Hourly Crude Oil Futures (January 30, 2007 – revised)

This is the revised (tentative) RSI picture, reflecting the potential bearish scenario that we have discussed with the potential descending channel defined by lines labeled 2. The arrows indicate the distance the old channel is lifted. Most of the lifting is the result of the positive divergence pushing the RSI up, while price keeps falling.

The upper boundary of this descending channel runs parallel to the previous channel prior to Point Y; conversely, the lower boundary only touches one RSI extremity on January 9. If this picture was valid, we would have a (DD-) signal at Points Y-V, within a descending channel, with a valid (DD+) signal at the same time. Things will become more clear when the RSI either breaks above Line V-W (indicating a bullish scenario) or breaks below Line A-B (indicating a bearish scenario).



**Figure 5.58** Hourly Crude Oil Futures (January 31, 2007)

Interesting! The RSI continues upward and breaks Line V-W with ease, reversing down when hitting the upper boundary of the ascending channel at 85. This means that the RSI is making its way into the next RSI segment. The RSI is definitely traveling within its ascending channel, which makes the “transition channel” scenario less likely.



**Figure 5.59** Hourly Crude Oil (January 31, 2007 – revised)

Within the ascending channel, the (DD+) signal takes effect and the RSI breaks the negative divergence. In this time frame, the market is clearly in a bullish mode. The potential descending channel (plotted yesterday) does not make much sense. After the RSI reverses downward from Point Q, a new tentative descending channel can be plotted.

Line 2 is moved so it can run through Point Q; the lower boundary line is moved up the same distance. This much better! Line D-B could be considered the lower boundary of a future descending channel. Line D-B defines a (DD+) signal, which comes as no surprise after the RSI reaches 85.

In any case, this small rally will be safe as long as the RSI stays above Line A-B. A new (DD+) signal will form soon. If the RSI breaks below Line A-B, we will probably see the formation of a (DD+) signal on Line D-B as well, because the origin of the (DD+) signal at Points D-B is the recent price low at \$50. These elements are all bullish, but what is their effect in the larger time frame?



**Figure 5.60** Daily Crude Oil (January 31, 2007)

The good news is that the RSI is now well above 40. The bad news is that the recent price advance is still considered an upward retracement in a bearish market as the RSI is on its way to produce a new (DD-) signal. I have plotted a tentative (DD-) reference line just to indicate that the recent RSI rise has been out-of-proportion to the price advance.

This line originates at an RSI extremity that corresponds to the \$61 price level. The RSI now exceeds this reference point while price barely reaches \$57. Still, for a (DD-) signal to form, the RSI needs to reverse down, which may not occur for a while. The higher the RSI gets before reversing downward, the higher the chances that we will see the formation of a (DD+) in the daily chart as well. The confluence of the (DD-) resistance line and the \$58 break-down level in the price chart will surely show some effect soon. A reversal downward from the \$58 level will result in a (DD-) signal in the daily RSI.



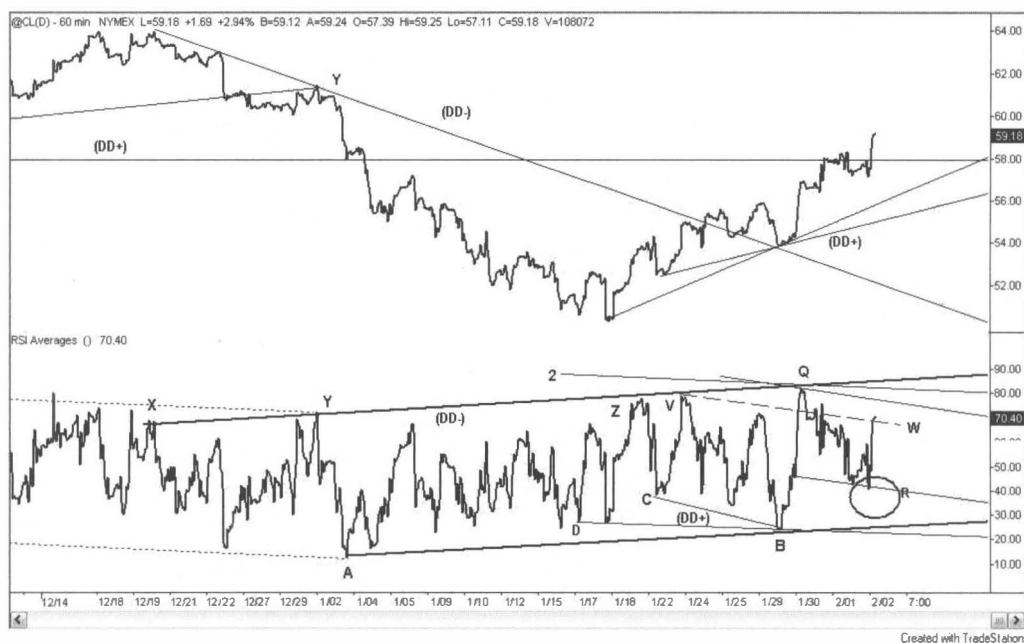
**Figure 5.61** Hourly Crude Oil (February 1, 2007)

This chart shows how price continues up after the RSI reverses down from its high at Point Q. We can expect the RSI to drop from Point W to Point R, where a new (DD+) signal should form. The potential (DD+) reference line at Point R is tentative but realistic. This line originates at an RSI extremity that corresponds to the \$54 price level. Price reaches the resistance line at \$58. In the daily RSI chart (not shown), the moving averages cross upward, which adds another bullish element to the picture.



**Figure 5.62** Hourly Crude Oil (February 2, 2007)

While price struggles at \$58, the RSI drops to the 40-level, where it reverses up, forming a (DD+) signal. It certainly looks like price will attempt to break \$58 soon.



**Figure 5.63** Hourly Crude Oil (February 3, 2007)

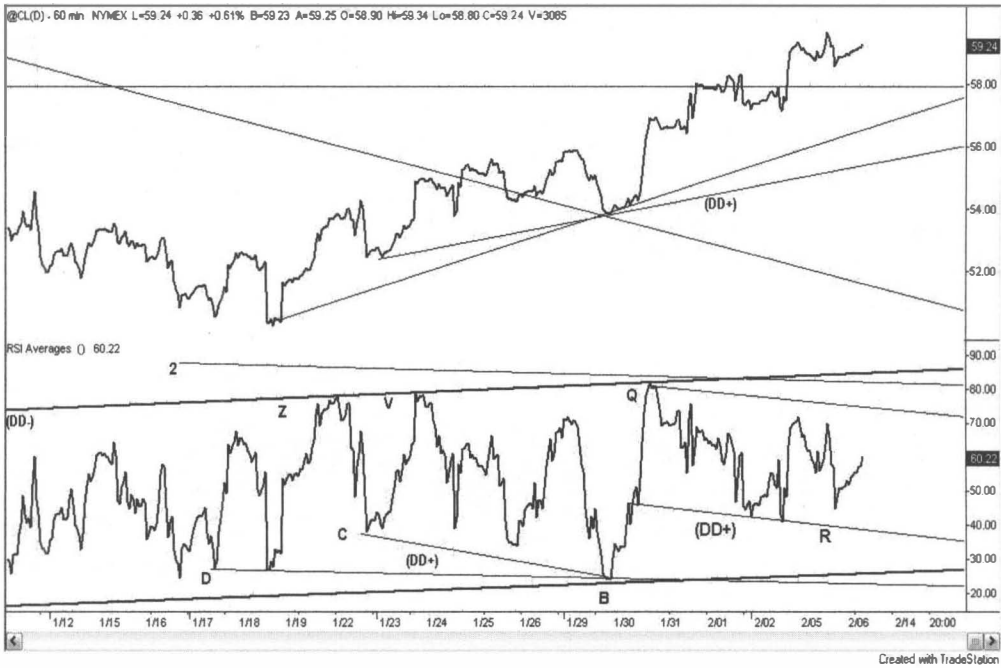
As expected, the RSI forms a (DD+) signal near Point R, above 40. The rally that follows propels price above the \$58 resistance level. Next, we should see the formation of another (DD+) signal on the reference line running through Point R, which is now the lower boundary of this new RSI segment. The ascending channel takes the RSI into bullish territory. The rally is safe as long as the RSI stays above Line A-B.



**Figure 5.64** Weekly Crude Oil (February 5, 2007)

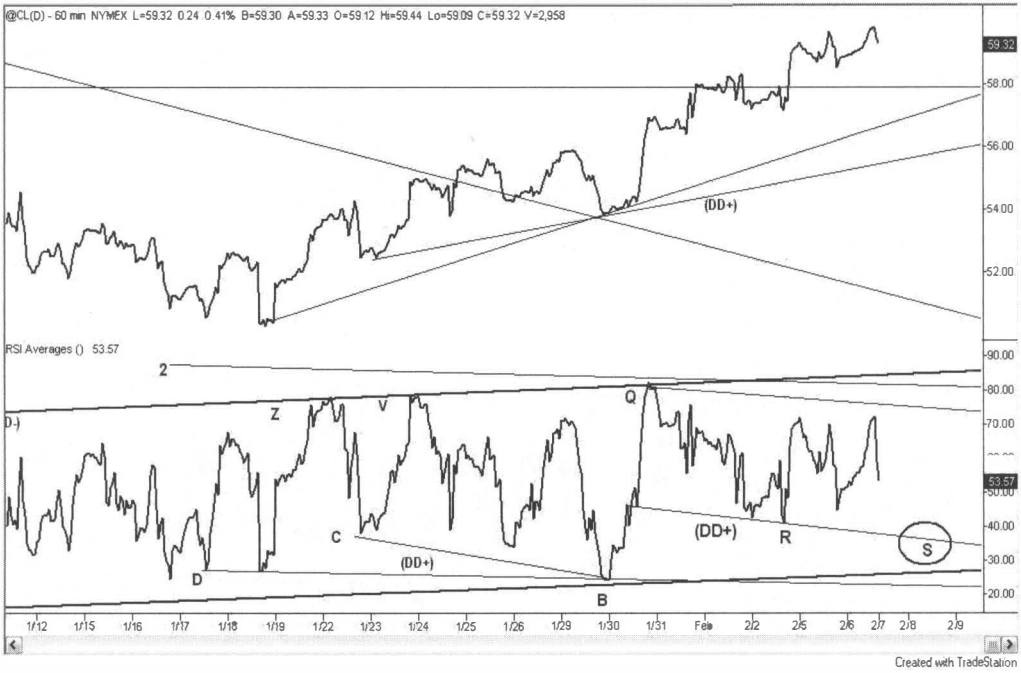
At the close of the week, the RSI reaches the 45-level and seems to hit resistance at the 45-week exponential moving average line. The 9-week simple moving average line is well below the 45-week exponential moving average. Price reverses down at Point F, after hitting resistance at the 20-period moving average line.

More resistance can be expected as price reaches the 20-week moving average again at the close of this week. This tells us that a sideways move or moderate decline is in the cards. The RSI could drop to the 9-week moving average line around the 40-level before reversing up. Price could rebound from the support line B-D at the \$54 level. In the price chart, Line E-F is the tentative neckline of a Head & Shoulders pattern, which could form if the RSI fails to escape from its descending channel. If the downward reversal materializes in the next few days, there will be a (DD-) signal in the daily time frame to deal with first.



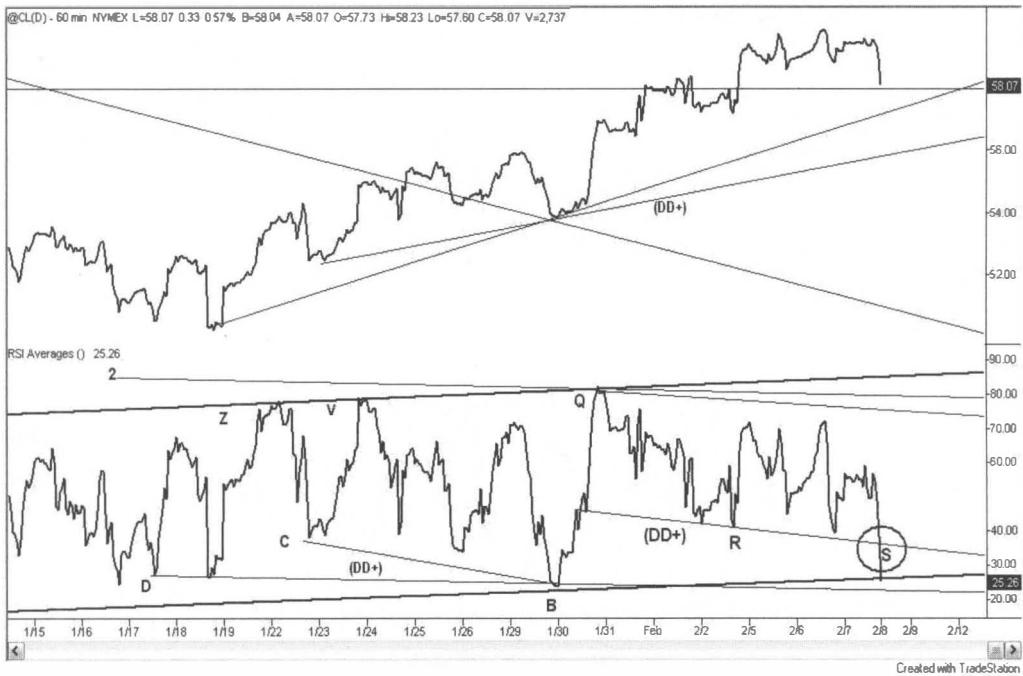
**Figure 5.65** Hourly Crude Oil (February 6, 2007)

There is a (DD+) signal on the reference line at Point R. Price consolidates above \$58 and approaches the price resistance line defined around the \$60 level in the daily chart. Let's see if the RSI manages to break out and slip into the next chart segment. The RSI may drop back to form a new (DD+) signal on the reference line near Point S, meaning that price could drop to \$58 before attempting to break the \$60 level.



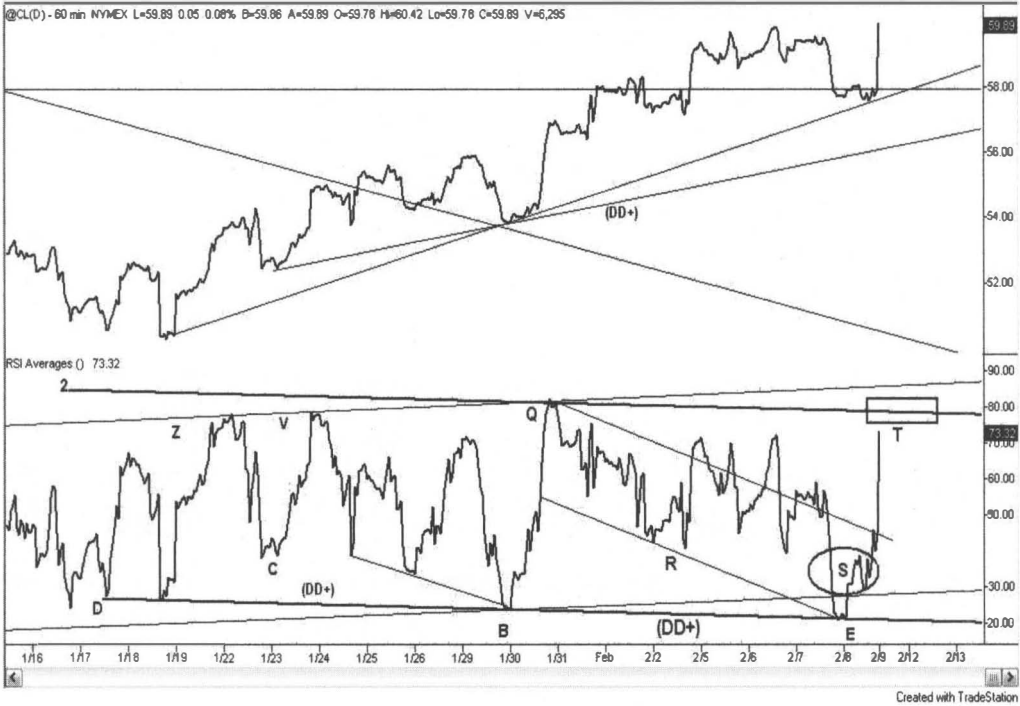
**Figure 5.66** Hourly Crude Oil (February 7, 2007)

The RSI reverses downward as expected. Expect a (DD+) signal to form near Point S.



**Figure 5.67** Hourly Crude Oil (February 8, 2007)

The hourly RSI chart shows that the potential (DD+) Line R-S is negated. The RSI drops to the lower edge of its ascending channel. We will need to monitor the RSI, to see if it stays within its ascending channel or if it starts to decline inside the descending channel (defined at its lower boundary by Line D-B). The RSI has not reversed up; when it does, another (DD+) signal will form. Price drops to the \$58 level as expected.



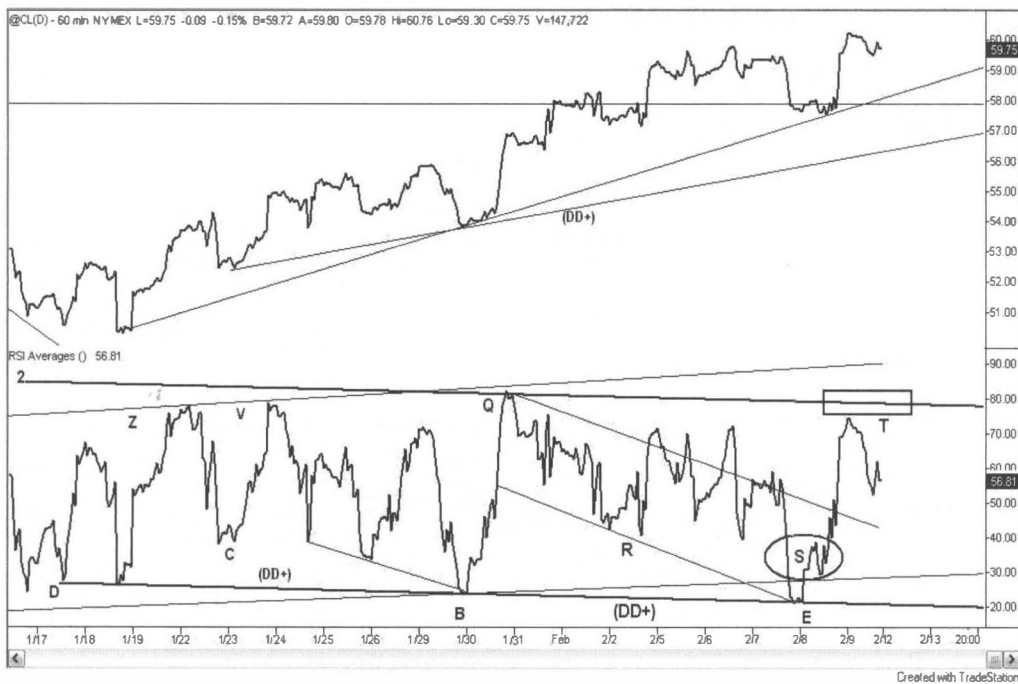
**Figure 5.68** Hourly Crude Oil (February 9, 2007)

The RSI continues down and reverses up off the descending channel boundary Line D-B-E. It must be assumed that this channel is in force. There is a (DD+) signal at Points B-E and price bounces nicely off of the signal support line. The RSI should reverse down from the area near Point T, (the upper boundary of its descending channel near the RSI 80). Near term, higher prices are still likely, but as the RSI continues down in this channel, the formation of a (DD-) signal is drawing closer. Prices are testing \$60 again.



**Figure 5.69** Daily Crude Oil (February 9, 2007)

The potential for a (DD-) signal is still here. However, the RSI is high enough to possibly form a (DD+) signal within its ascending sub-channel in the area near Point B', which is above 40. The hypothetical (DD+) reference Point A' is the crossing point of the moving averages. In this scenario, price should not drop lower than the price level at Point A, \$54.



**Figure 5.70** Hourly Crude Oil (February 10, 2007)

The hourly RSI reverses down from Point T, confirming that the descending channel is in force. The minor price retracement down from \$60 causes the RSI to drop all the way to the 50-level, a typical bullish (DD) move. With the RSI reversal to the upside, we should see price reach new highs, but we know that price will hit resistance at \$60. What happened?



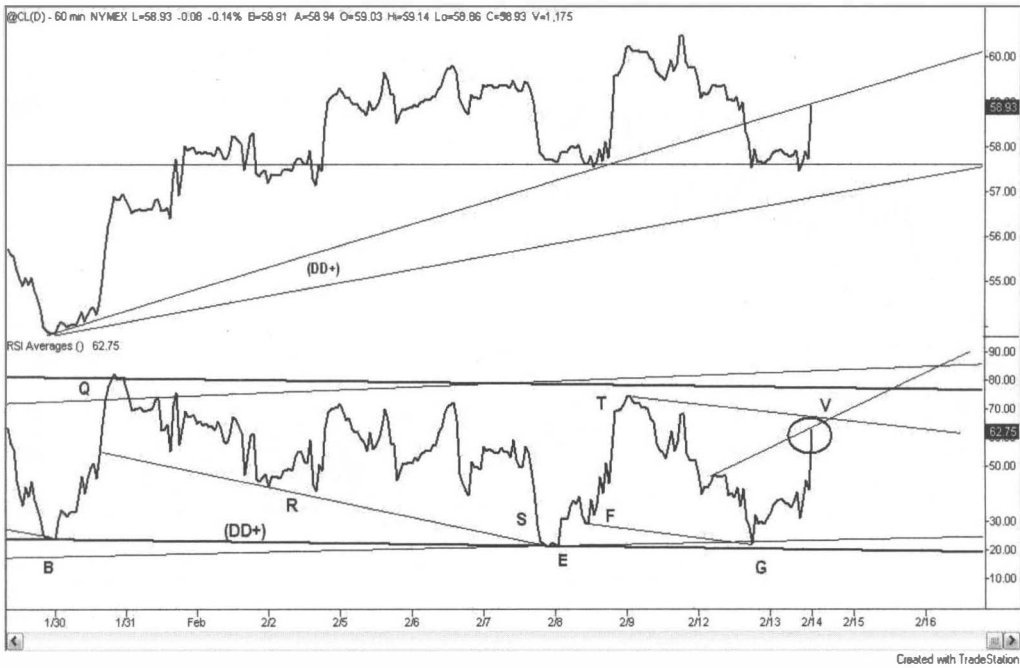
**Figure 5.71** Daily Crude Oil (February 13, 2007)

Price retreats after hitting the (DD-) reference line at \$60. The RSI reversal downward confirms the (DD-) signal at Points X and Y. Point Y is situated at the RSI 60-level. Expect the formation of a (DD+) signal at Point B' if price manages to stay above \$54, the reference price level at Point A.



**Figure 5.72** Hourly Crude Oil (February 13, 2007)

The hourly RSI reverses up from Point G, forming a (DD+) signal in reference to Point F. In this example, the reference prices are identical at \$57.70; the price support line for this (DD+) is horizontal. The recent price rally is weakening. From Point G, there is a positive divergence building, which could be the formation of the first (DD-) signal in this time frame. The circle marks the hypothetical point where a (DD-) signal could form near the RSI 60-level. Its Lighthouse price level is \$59.50.



**Figure 5.73** Hourly Crude Oil (February 14, 2007)

Note how the RSI pops up as expected, reaching the area at Point V (circled) near the 60-level. A reversal down will cause the formation of a (DD-) signal at Point V, within the descending Channel T-V-F-G. If this scenario materializes, conflicting signals will be present, defining a negative price wedge with its base line at \$57.50. This is the Lighthouse level of the (DD+) signal at Points F-G.



**Figure 5.74** Hourly Crude Oil (February 15, 2007)

The RSI reverses downward from Point V and fails to jump into the next chart segment. This forms a timid (DD-) signal at Point V and a timid (DD+) signal at Points F-G. In price, the result is a wedge with its base at \$57.50. The recent price high could be considered the right shoulder of a Head & Shoulders formation. If the recent (DD-) signal at Point V takes effect and price drops below \$57, it will be an opportunity to short the crude oil market.



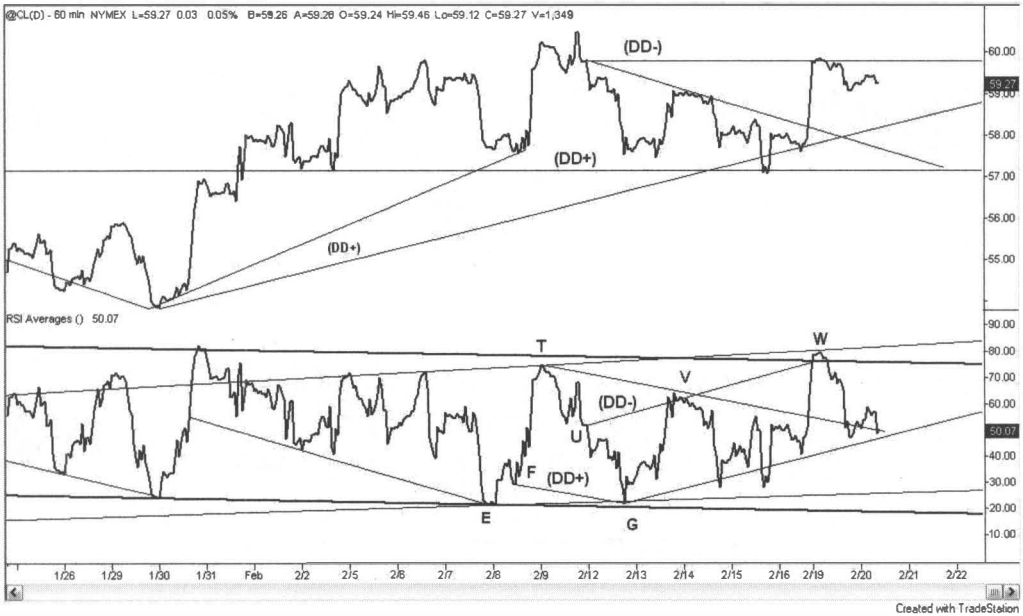
**Figure 5.75** Daily Crude Oil (February 15, 2007)

The recent (DD-) at Points X-Y is confirmed. This (DD-) signal is inside a larger (DD-), which is inside a descending channel. There is presently no valid (DD+) signal in sight. With some imagination, a (DD+) signal could form at Point B', which should cause price to stay at or above \$54. If the RSI continues lower at Point B', a drop to Point C' is in the cards. When crude oil is shorted below \$57, an initial drop to \$54 [Point C] later on] can be expected.



**Figure 5.76** Hourly Crude Oil (February 16, 2007)

The RSI progresses in the triangle. Price on the close manages to stay above \$57.50. We stick to our plan to short crude oil on a daily close below \$57.



**Figure 5.77** Hourly Crude Oil (February 20, 2007)

The RSI breaks the triangle to the upside after a brief intraday slip. There is a (DD-) signal at Points U-V, but the RSI breaks the signal's validity Line T-V. Price breaks the wedge to the upside and reverses down from the (DD-) Lighthouse level just shy of \$60. At Point W, the RSI appears to have violated its descending channel. Are we going to witness the formation of a (DD+) signal in the ascending channel?



**Figure 5.78** Daily Crude Oil (February 20, 2007)

After an intraday slide, price manages to stay above \$57 (as shown by the arrow on the close). The (DD-) price resistance line is tested again. There is still a valid (DD-) signal at Points X-Y; the Lighthouse level for this signal is near \$61.



**Figure 5.79** Hourly Crude Oil (February 21, 2007)

There is a (DD+) signal at Points J-K, and the (DD-) signal at Points U-W is also valid. Price reverses down from the (DD-) Lighthouse level and it looks like the conflicting signals define a positive wedge in the price chart. Point K is in bearish territory, so a downward reversal of the RSI will send prices lower. Contrary to what the channel violation at Point W tells us, the RSI at Point K breaks below its ascending channel. To stay on the safe side, let's say that price is moving in the range from \$57 to \$60 – the Lighthouse levels of the (DD+) signal and (DD-) signal respectively.



**Figure 5.80** Hourly Crude Oil (February 23, 2007)

The (DD+) signal at Points J-K propels the RSI to the top of its channel. The price wedge breaks to the upside in a textbook manner. At Point X, it is not clear whether the RSI breaks its descending channel. The RSI action past Point X seems to indicate that this descending channel is still in force. As the RSI is well within bullish territory, each time the RSI reverses upward price reaches new highs. \$60 is a solid support level.



**Figure 5.81** Daily Crude Oil (February 23, 2007)

The daily RSI manages to rise above both moving average lines and appears to be on its way to Point Z. Given the remaining distance to that point, it looks like there will not be a (DD-) signal at Point Z, as price is presently breaking the \$61 Lighthouse level. This makes the bullish scenario more likely, as it becomes clear that we should now expect a (DD+) signal to form in the ascending channel. This will probably not occur at Points A'-B', but may occur higher in the channel. There is no justification to short crude oil at this time because the hourly and daily pictures are bullish.



**Figure 5.82** Weekly Crude Oil (February 23, 2007)

From the (DD+) signal at Point D, the RSI continues up and is well over 40. The moving averages are broken. Price breaks its 20-period moving average line to the upside. If price manages to break the potential Neckline E-F, the picture becomes bullish in the short-term. The RSI could be expected to continue up to Point Y, where a (DD-) signal may form when the RSI reverses down and price does not exceed \$74. This means that the potential rally could carry from \$62 to more than \$70.



**Figure 5.83** Hourly Crude Oil (February 24, 2007)

The RSI action at Points K and X does not indicate which channel the RSI is traveling. The RSI tops past Point X seem to indicate that the descending channel is valid. Still, it is clear that the RSI jumps into the next segment, following the (DD+) signal at Points J-K. Consequently, we should see a new (DD+) signal forming on Line L-M, inside the ascending channel. In this scenario, price should not drop below \$59: the price level corresponding to Point L in the RSI. After the break-out from the wedge, price advances further. The (DD-) Lighthouse at the \$60 level provides support.



**Figure 5.84** Daily Crude Oil (February 24, 2007)

The RSI manages to stay above its moving averages and advances toward Point Z. There is still a valid (DD-) signal at Points X-Y, but the RSI is well above 40 and the formation of a (DD+) signal could be expected at Points A'-B', or even at Point D', within the ascending sub-channel O'-B'-D'. This daily picture is turning bullish.

An RSI drop below Line O'-B'-D' would signal that the RSI is starting a down-leg to the potential lower boundary Line O'-C' of its ascending channel. It looks likely that even in this scenario, price will not drop below Level A, [the Lighthouse level at \$54 of the potential (DD+) on the extended Line A'-B'].

The only bearish elements in this scenario are: 1) price reverses down from the (DD-) Lighthouse level at \$61 and 2) price reaches the neckline of a potential Head & Shoulders pattern in the weekly chart.



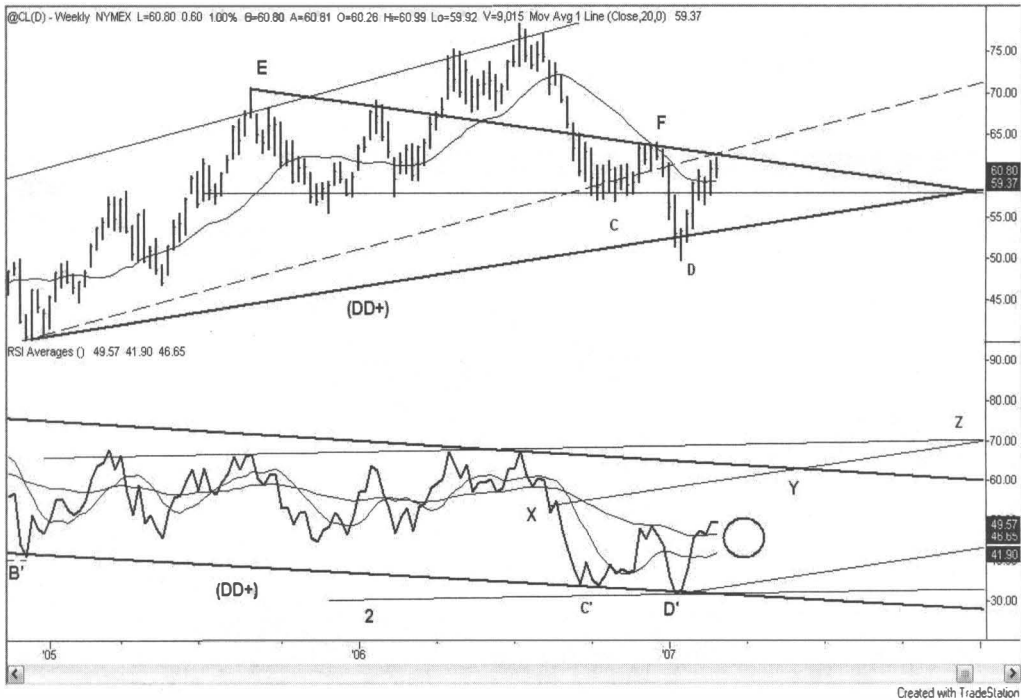
**Figure 5.85** Hourly Crude Oil (February 28, 2007)

Line L-M is lowered to reflect the actual situation. The RSI reverses up from Point M, forming a (DD+) signal in relation to Point L. The validity line for this (DD+) signal and potential ascending channel boundary is Line K-M. From here, we will need to see the RSI move into the next segment at the arrow. If this fails, a further RSI drop to Line E-K is likely, where a (DD+) signal is due in relation to Point K (on the condition that price will not be lower than \$58). Note how the boundaries of the mirroring channels converge toward the RSI 50-level.



**Figure 5.86** Daily Crude Oil (February 28, 2007)

The RSI manages to stay above its 9-day simple moving average line and advances slowly to Point Z. The longer the RSI stays up, moving sideways, the more likely it becomes that a (DD+) signal is in the making in the area around Point D'. The Lighthouse level for the potential (DD+) at Point D' is at \$57.30, forming a support level. Price struggles at the \$61 level, so the (DD-) signal must still be taken into account. The effects of this (DD-) signal will only kick in when the RSI drops below Line O'-B'-D'. This takes us back to our strategy to short crude oil when price drops below \$57 and the RSI drops below Line O'-B'-D'.



**Figure 5.87** Weekly Crude Oil (February 28, 2007)

This is the final chart in our crude oil analysis. Prices struggle at \$61, which corresponds to the potential neckline in this weekly picture. The RSI is above 40 *and* above both moving average lines, but this is not the whole story.

If the RSI continues down, a (DD-) signal will form in relation to Point F. Still, it is likely that we will see the RSI decline to the point where its moving averages are about to cross in the circled area. This could coincide with the formation of a (DD+) signal in the daily chart. If this daily (DD+) signal should take effect, we will see the weekly RSI reverse up from the circled area. If a (DD-) signal shows up in the weekly time frame, but there is valid (DD+) signal in the hourly, we will need to wait for the daily (DD+) to be invalidated (with price dropping below \$57) before the weekly (DD-) can take effect.

**PART III**

**S&P 500 INDEX**



**Figure 5.88** Daily SPX (January 11, 2007)

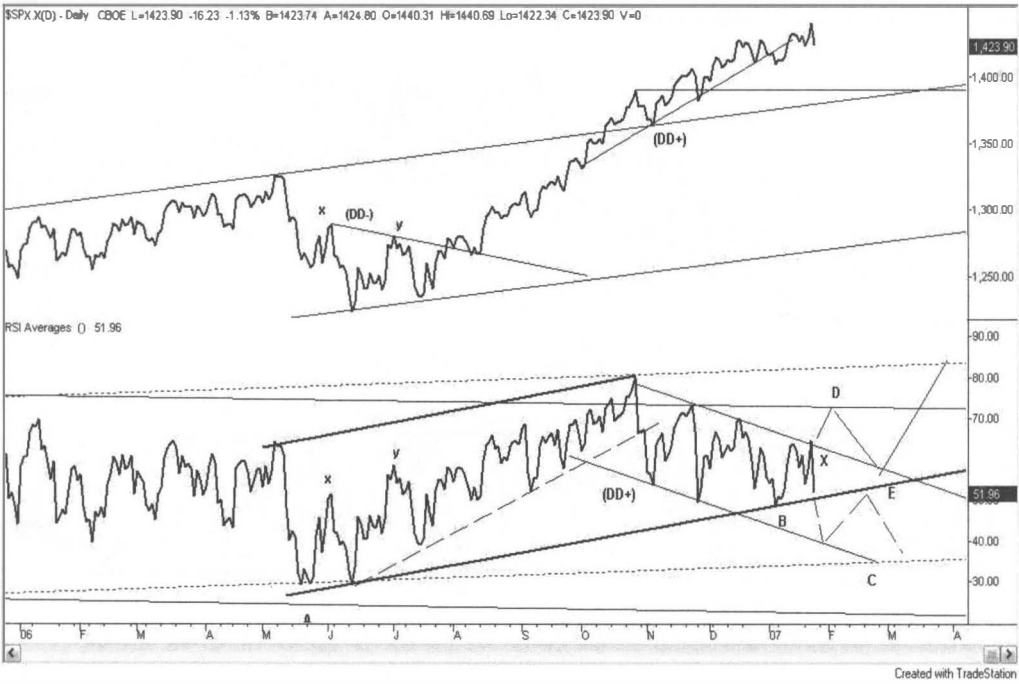
(The daily SPX chart is the same chart as Figure 3.36 in Chapter 3). The RSI bounces nicely off its channel bottom, well above 40. The severe negative divergence (that started in October 2006) does not harm the uptrend. It does cause a small dent in the price advance as price breaks below the steep (DD+) support line.

If the RSI continues up, breaking out of its descending sub-channel at the arrow, an advance to the RSI 80-level is in the cards. What would this mean for price? Look at the price advance following the W-formation in the RSI in mid-August 2006. This W-formation is at the same RSI level that we are seeing now. The ensuing RSI rally to the 80-level late in October 2006 sees price move from 1275 to 1390! But we are not there yet. If the RSI break-out fails, we could see it drop to the Line A-C.



**Figure 5.89** Hourly SPX (January 26, 2007)

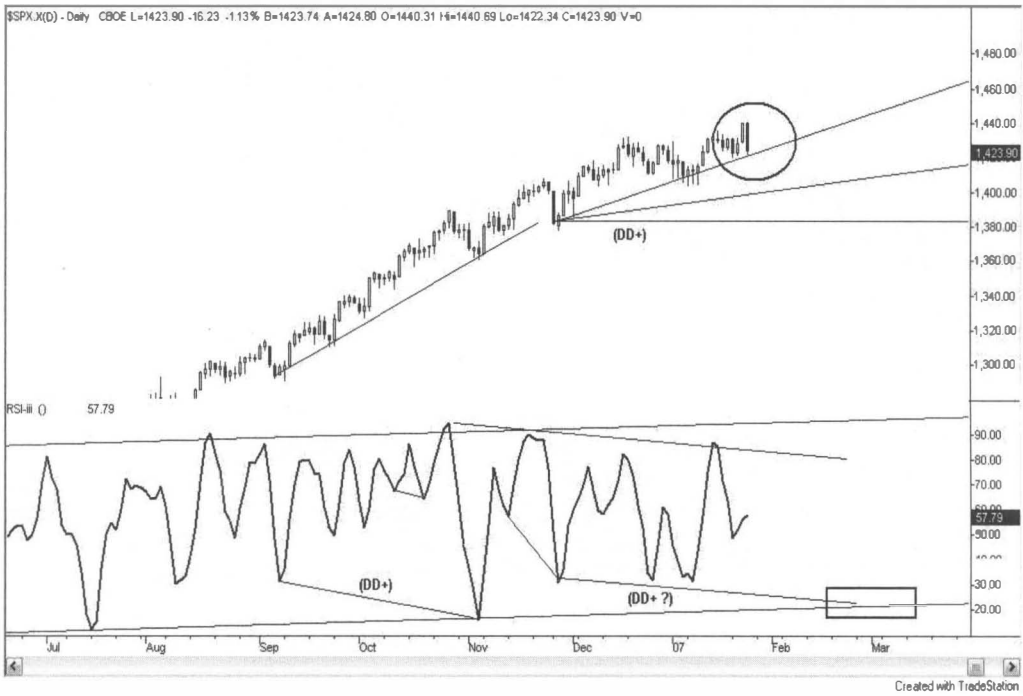
After the RSI breaks from the Triangle Q-R, it fails to escape from its descending channel twice, so the question remains open as to which channel is in force. If it is the ascending channel, the RSI should build a (DD+) signal along the (DD+) reference line in the vicinity of the circle. However, if the dashed line is broken, the RSI will enter bearish territory as it drops to the 20-level at the bold line, the lower boundary of the descending channel.



**Figure 5.90** Daily SPX (January 26, 2007)

We can see how important it is for the hourly RSI to stay within its ascending channel. The RSI fails to break out at Point X, as discussed in the hourly chart. I have adjusted the upper boundary of the descending sub-channel and its parallel lower edge to reflect this.

The RSI is nearly touching Line A-B. If the RSI drops below this channel boundary, it will continue down within its descending sub-channel. There may still be a (DD+) signal when it rebounds around the 40-level, but a rise to the top of its channel will only take it to the 55-level, meaning a lower price high. Unless the RSI escapes from its descending sub-channel, we will likely see a Head & Shoulders pattern in the price chart.



**Figure 5.91** Daily SPX with Candlesticks and RSI(3)

The tweezers-bearish engulfing candlesticks spell trouble, as this pattern is usually followed by continued price weakness. The 3-period moving average of the RSI(3), like the RSI(14), appears to be on its way to build a (DD+) signal in the rectangle area, around the 20-level.

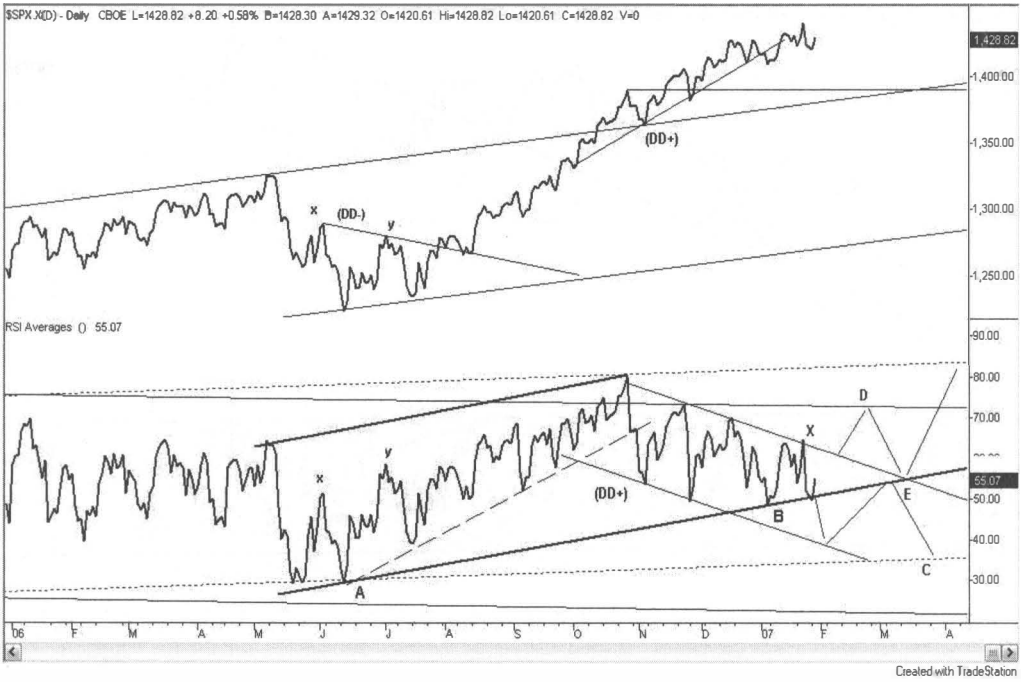


**Figure 5.92** Hourly SPX (January 27, 2007)

The RSI reverses up from the (DD+) reference Line S-T, while price stays nicely above the (DD+) support line. The real test will take place when the RSI reaches the dashed Line Q-T. If it reverses up from that line, the RSI will stay within the triangle (forming between the dashed Line Q-T and the descending bold line).

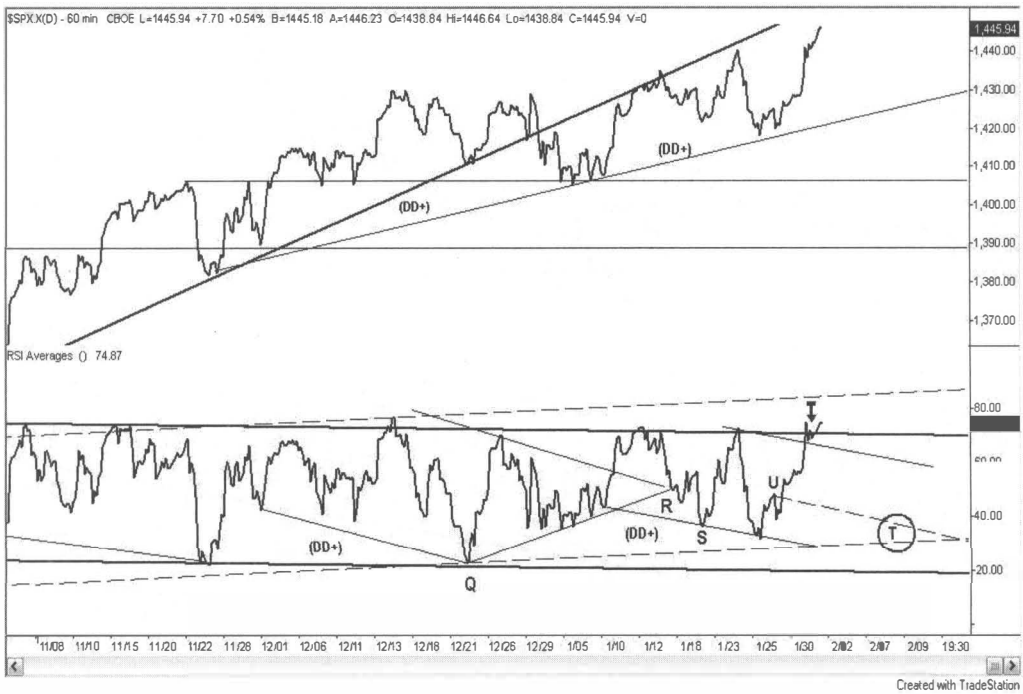
This would mean that the RSI could get another chance to escape from its descending channel, (which has failed twice). If the RSI breaks below Line Q-T, this will correspond in the daily chart to a violation of the important Line A-B-E, while an RSI break-out means the RSI is escaping from its negative divergence channel. Decision time is approaching. The hourly time frame will provide an early warning.





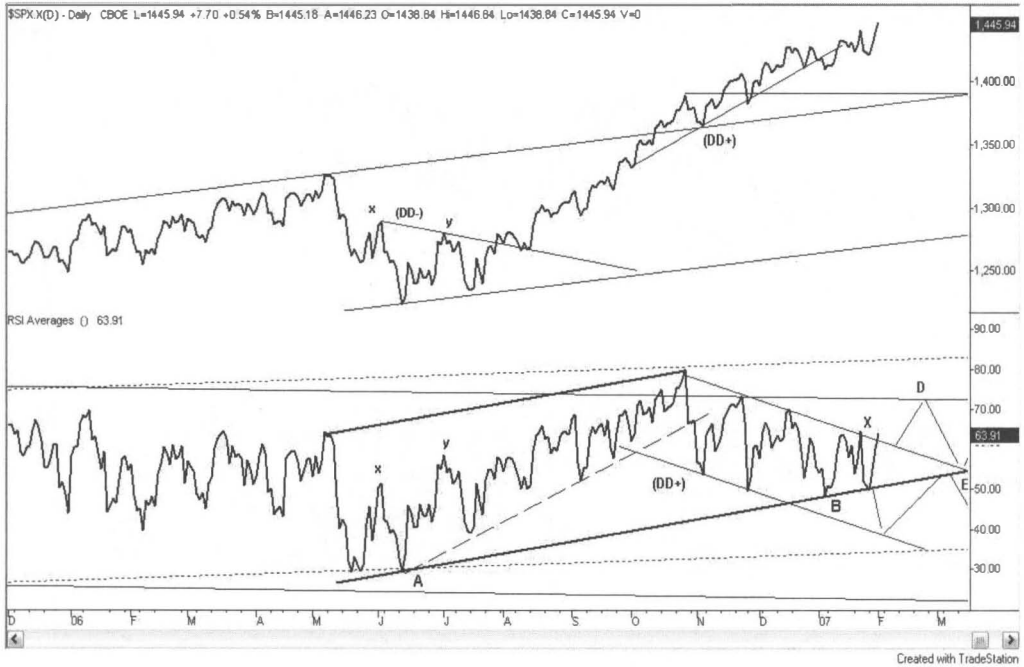
**Figure 5.94** Daily SPX (January 31, 2007)

The RSI once again rebounds off Line A-B-E and progresses into the narrowing triangle, defined by Lines A-B-E and X-E. The negative divergence still holds, but the RSI remains within bullish territory. We watch the hourly chart for an early indication of which direction the RSI will escape.



**Figure 5.95** Hourly SPX (February 2, 2007)

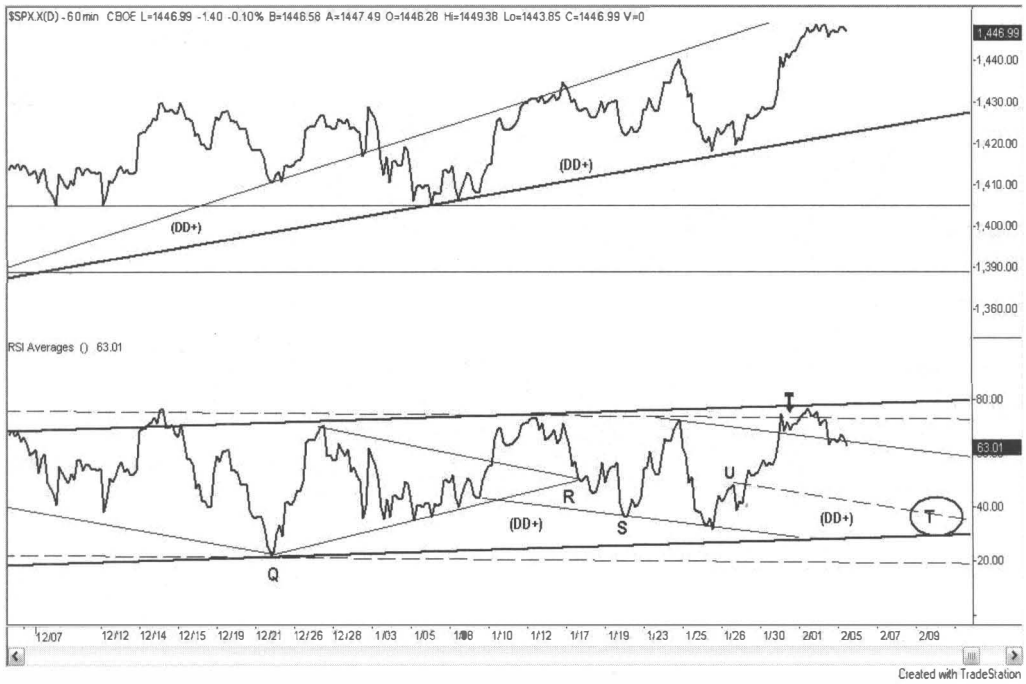
The RSI continues upward from the (DD+) reference line, entering the next RSI segment. At the same time, the upper boundary of its descending channel is being perforated at the arrow. This means that Point T can be moved to the right, as it becomes clear that the RSI is entering a higher segment. A good guess for the next (DD+) signal (within the ascending channel) is at Line U-T.



**Figure 5.96** Daily SPX (February 2, 2007)

As discussed in the hourly chart, the RSI also challenges the upper boundary of its channel. If the RSI breaks out, our assumption will have to be that the only effect the negative divergence has is that it allows the RSI to drop to a lower level within bullish territory, only to create more headroom for a forceful price advance to new highs.

There is one caveat: the RSI break-out should not fail at this point. After a period of negative price/RSI divergence, the RSI rebound often runs out of steam rapidly, reverses downward, breaks the channel boundary and enters a vertical drop. The RSI must break the 65-level soon. Had I discussed this pattern earlier in Chapter 2, I would have labeled it the “Pull-up and Stall” pattern. Like an aircraft in flight, the RSI is in a dive during the negative divergence phase. The recovery from the dive appears to be just in time as the RSI reverses up before entering bearish territory. However, the aircraft (RSI) runs out of speed and stalls, losing altitude rapidly.



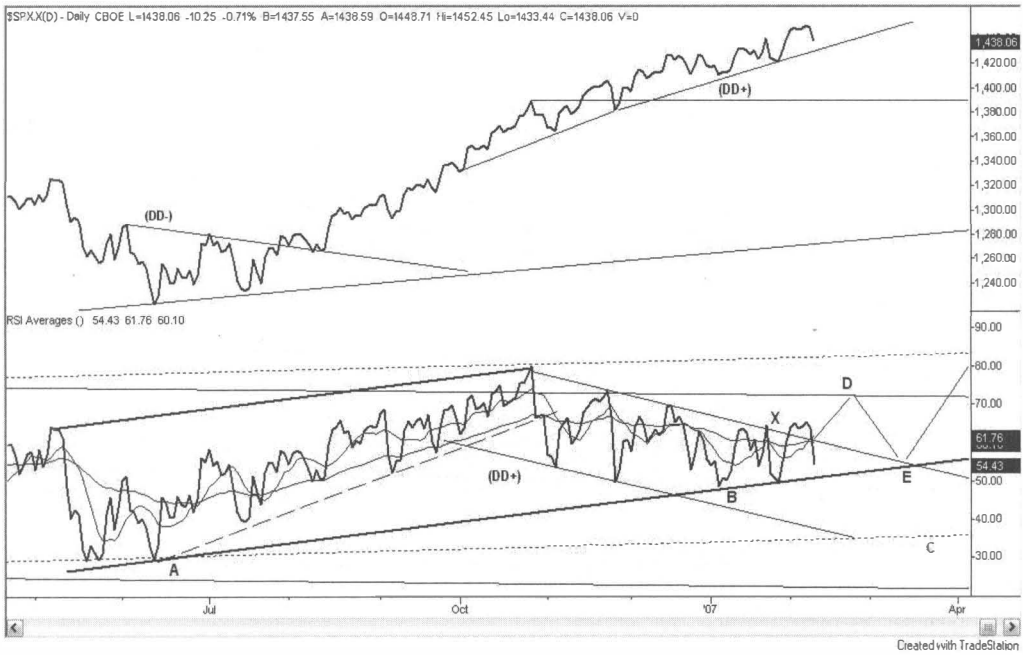
**Figure 5.97** Hourly SPX (February 6, 2007)

I have highlighted the ascending channel in the hourly SPX. At this point, we must assume that this channel is in force now, since the RSI breaks from its descending channel at the arrow. The formation of a (DD+) signal is expected near Point T. These are all bullish elements. Blue skies are ahead as long as the RSI stays above Line Q-T.



**Figure 5.98** Hourly SPX (February 10, 2007)

The RSI drops to the area near Point T, as expected, but does not reverse up until reaching the lower channel boundary Line Q-T. The expected (DD+) signal forms on Line U-T at a slightly lower than anticipated level. The upward RSI reversal is not quite convincing. We will need to see it continue in the next session. If not, the RSI could drop below Line Q-T.



**Figure 5.99** Daily SPX (February 10, 2007)

Again, the daily RSI fails to break out decisively; it is unable to rise above 65. This failure is significant, as it points to the “Pull-up and Stall.” We need to closely monitor the formation and effect of the potential (DD+) signal in the hourly chart.



**Figure 5.100** Hourly SPX (February 13, 2007)

The RSI cannot seem to hold on to the lower boundary of its ascending channel. As Point T is in bearish territory, price drifts lower each time the RSI reverses down. The (DD+) signal at Points U-T still stands, but the RSI must reverse up in the next session.



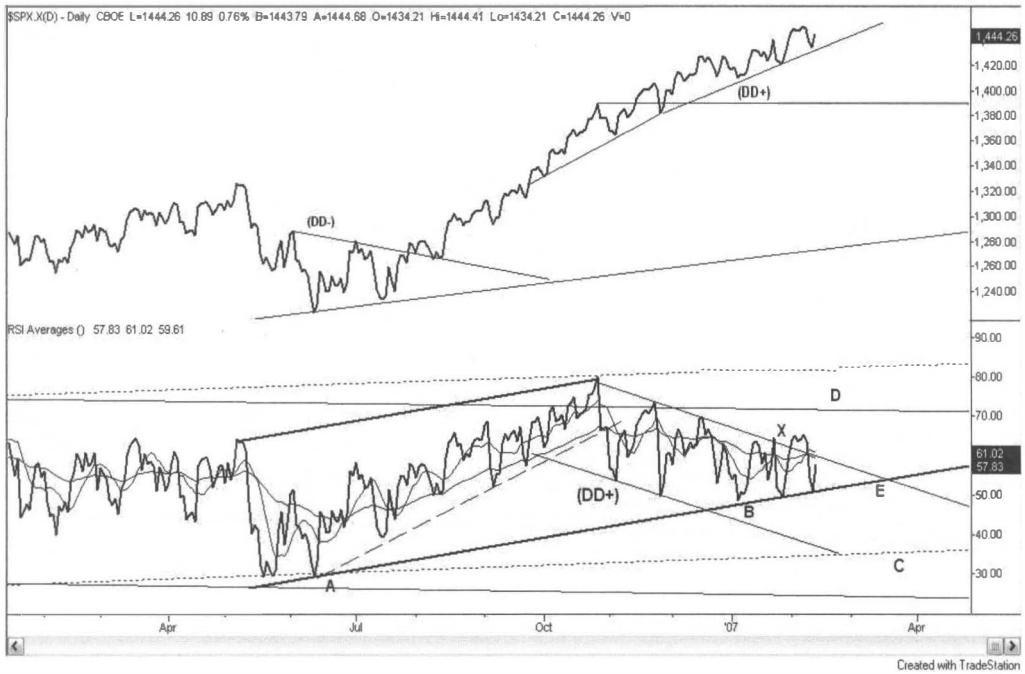
**Figure 5.101** Daily SPX (February 13, 2007)

The RSI tests Line A-B-E once again. As discussed previously in the hourly chart, a reversal up is required to save the rally. If this rebound occurs, we will need to determine if the RSI succeeds in breaking above the 65-level.



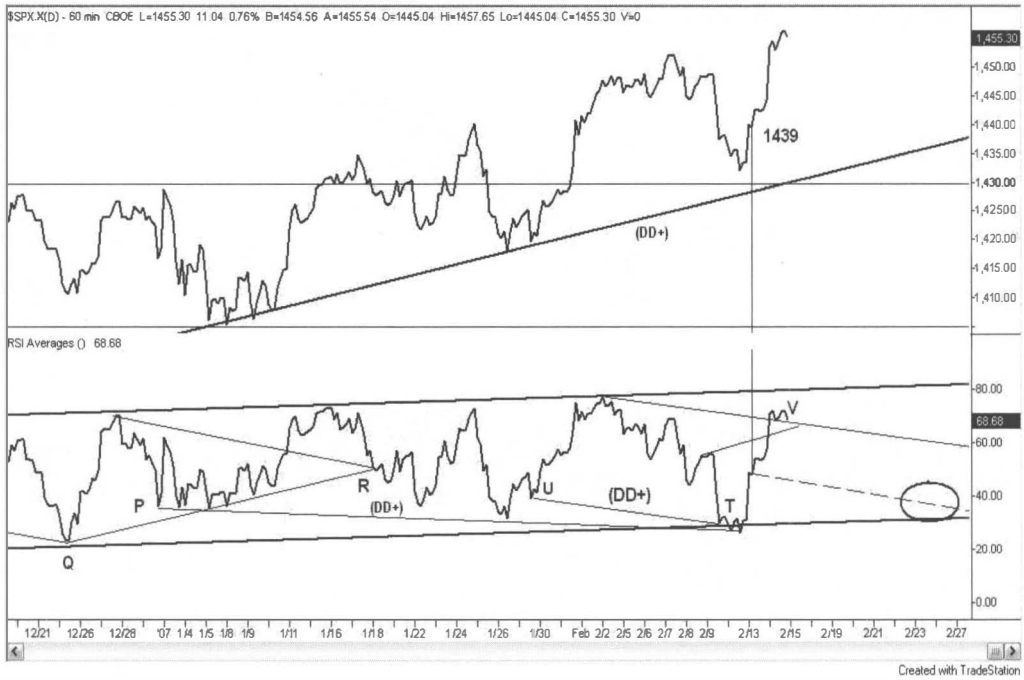
Figure 5.102 Hourly SPX (February 14, 2007)

As expected, the RSI bounces off its ascending channel bottom. The (DD+) signal is confirmed at Points U-T, but Point T is in bearish territory. We could potentially see the formation of a (DD-) signal, should the RSI fail to break out from its descending sub-channel in the ellipse.



**Figure 5.103** Daily SPX (February 14, 2007)

The RSI manages to stay out of trouble as it reverses upward from the Line A-B-E. Let's see if the formation of a (DD-) signal can be avoided in the hourly time frame.



**Figure 5.104** Hourly SPX (February 15, 2007)

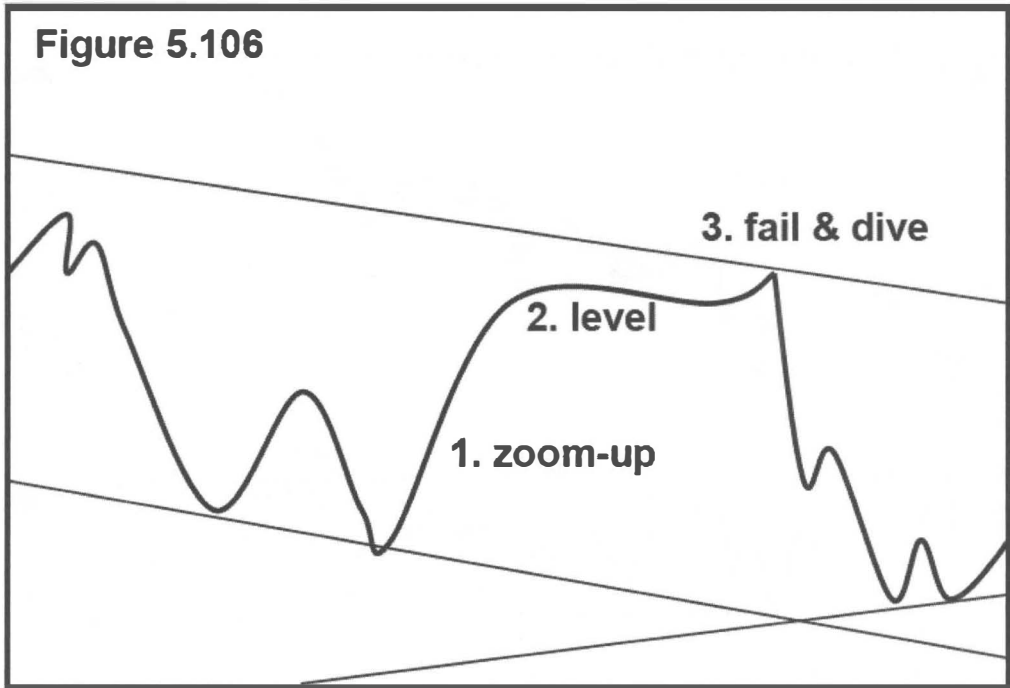
A bullish Fed announcement causes a rally. The RSI breaks its descending channel at Point V, avoiding the formation of a (DD-) signal and reaching the next chart segment. The latest (DD+) signal takes effect. The RSI should stay within this segment and produce another (DD+) signal on the dashed line, near the ellipse. An educated guess for the origin of this projected (DD+) signal is at 1439. This means that in this tentative bullish scenario, price will not drop below 1439.



**Figure 5.105** Weekly SPX (February 18, 2007)

If the descending channel is considered a transition from one ascending channel to the next, a projection of the new channel's lower boundary could be made by taking the width of the previous ascending channel and plotting it in reference to the upper boundary (dashed lines). However, in this scenario, we can assume that the RSI is not going to break out of its descending channel.

I prefer this interpretation because it is compatible with a plausible Elliott Wave count. There is also an RSI pattern that I have seen building only in weekly charts. Look at the 9-period simple moving average line in the RSI chart. In mid-2006, it moves up steeply and levels off.



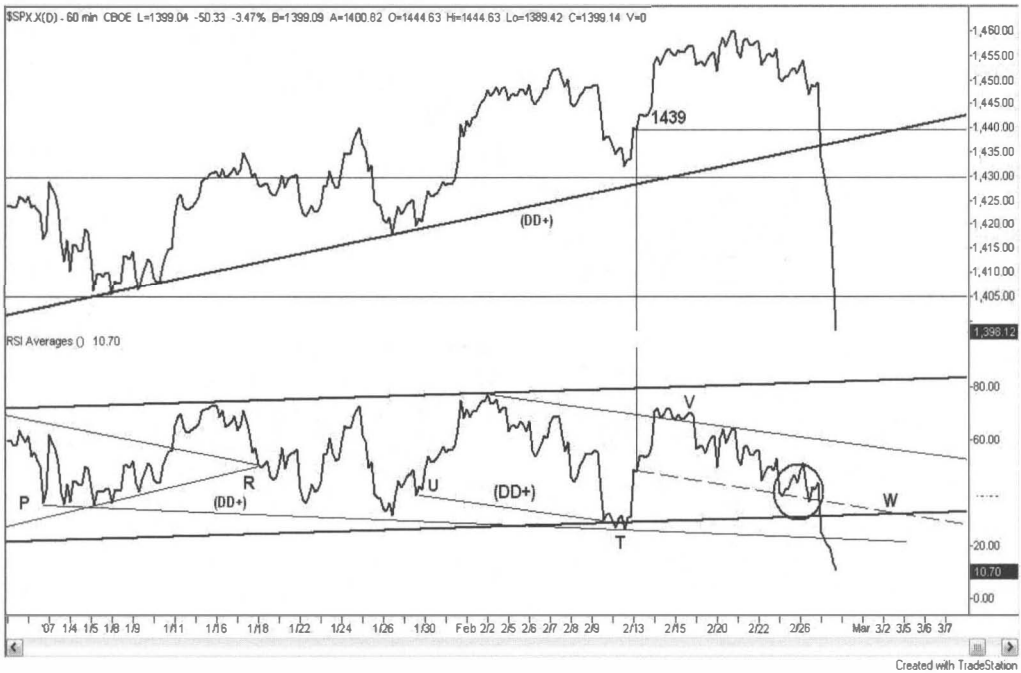
**Figure 5.106**

There is a pattern developing: In this imaginary RSI chart, the RSI is smoothed-out. After a steep rise in Phase 1, the RSI struggles to stay level in Phase 2 and attempts a break-out. If it fails, the RSI will drop vertically. In the final stage of Phase 2, some Doji-like candles typically develop and the price drop is swift and deep.



**Figure 5.107** Daily SPX (February 24, 2007)

The daily RSI reverses down from 65. Is an RSI Squeeze developing here? This is certainly a scenario to take into account. The struggle the RSI has at the 65-level in the daily chart is certainly not typical of a bull market. For the rally to resume, the RSI needs to rise above 65. It looks like the RSI is about to test Line A-B-E again. The hourly RSI should be monitored for an early indication of a rebound or break-down.



**Figure 5.108** Hourly SPX (February 28, 2007)

I could not have wished a better scenario to illustrate my Time Frame Correlation method. Yesterday’s bearish market action does not come as a surprise. We were on the lookout for a test of the important Line A-B-E in the daily RSI.

We know from our earlier analysis there is a distinctive (but rare) pattern developing in the weekly RSI. In the hourly chart, we conclude that another (DD+) signal is in the making in the circled area. Of course, the RSI needs to reverse up. The price Lighthouse level for this potential (DD+) signal is 1439. We know that if this price level breaks, this potential (DD+) signal will never materialize.

It is also clear that a drop of the hourly RSI below its ascending channel boundary Line T-W will not only invalidate the recent (DD+) signal, but, more importantly, it will also mean that the daily RSI is breaking below the equivalent Line A-B-E. In this case the effect of the hourly RSI signal triggers a larger signal in the daily RSI and the daily RSI behavior pushes the weekly RSI over the edge, as well. Hence, the huge and sudden drop in price. This is a perfect illustration of how a “loose pebble” in the hourly RSI can help us anticipate an “avalanche” in the weekly charts.



**Figure 5.109** Daily SPX (February 28, 2007)

In the pre-market ES (SPX) futures trading, it becomes clear that the daily RSI is going to test Line A-B-E at the open of the regular session. I e-mailed a “Caution!” message to my fellow traders, advising that a drop in the SPX (cash) below 1439 could trigger a swift and deep sell-off. What a slide!

Note that the daily RSI even breaks below the channel boundary Line A-C, where we expect a new (DD+) signal to form on the existing (DD+) reference line. Price drops 3.5% and nearly reaches the projected 1390 level. In this case, it is a textbook Pull-up and Stall pattern, as discussed earlier.

In fact, this market action is not unlike what we witnessed earlier in the NVDA analysis. The recent rally is so strong that a (DD+) signal forms in relation to Point A, if the RSI reverses up from the dashed line. But the RSI enters bearish territory and it has to be assumed that the rebound will lead to the formation of a (DD-) signal in the daily time frame – the first one since July 2006!



**Figure 5.110** Weekly SPX (February 28, 2007)

I conclude the SPX analysis with the weekly SPX chart. Note that this is an intra-week chart, so the RSI picture does not reflect price action on close. Still, this chart illustrates how brutal the sell-off can be in this type of RSI pattern.

I refer to the RSI pattern discussed on February 18. This pattern occurs twice in the RSI charts of the Nikkei Index in 2006. On one occasion, the ensuing drop totals about 1000 points, or nearly 7% of the index value. Although the weekly RSI travels within a descending channel, the trend is still up and the recent (DD+) signal is still valid. Even if the RSI drops all the way to the ellipse area, it will bottom near 40, where a new (DD+) should form, as long as price has not dropped below 1220 (Point 4).

A drop of this magnitude is unlikely. An acceptable scenario would be that the RSI reverses upward into the rectangular area, where the moving averages are expected to cross down. If the RSI reverses downward from this area, it could very well coincide with the formation of the anticipated (DD-) signal in the daily chart. In this scenario, a repeat of the RSI behavior from the period January to August 2004 could be seen.

Consequently, a price target of 1320 is not unrealistic, as this would mean the correction extends to the previous Wave 4 area in my tentative Elliott Wave scenario. The key elements in this scenario are: 1) the reversal down of the RSI when it reaches its moving averages, possibly coinciding with a (DD-) signal in the daily time frame, and 2) the failure of the RSI to stay above the nearest dashed line, (the potential lower boundary of a new ascending channel). After all, the highlighted descending channel could prove

to be a transition channel from one ascending channel into the next lower one, which could take the RSI back to the 80-level and price to new highs.

The lower dashed line appears to have the best chance of becoming the lower boundary of the future ascending channel because the width of this channel fits the size of such a channel. That is how this tentative line is plotted. In this scenario, when the RSI finally reverses upward from the ellipse, we will have a giant (DD+) signal near 40 in an ascending channel.

## PART IV

### NVIDIA (NVDA)



**Figure 5.111** Hourly NVDA

Let's continue our study NVDA analysis from Chapter 4 (B, a). The RSI breaks the triangle to the upside *and* breaks the negative divergence. We can assume that the RSI is traveling within an ascending Channel<sup>2</sup>. At this point, the earlier reference lines are irrelevant and can be deleted.

The corresponding price rally is explosive indeed. In the RSI, a FAST (DD+) forms on the dotted triangle line and an ascending channel takes shape. In fact, the FAST (DD+) forms as the RSI advances into the next segment, subsequent to the (DD+) in the middle of the chart. We see the RSI build another (DD+) signal near the area bounded by the rectangle. This means that corresponding prices are not lower than the FAST (DD+) reference price at \$37. Consequently, if a long position were entered, the \$37 level would be a good location for a stop-loss order. The strong rally will remain unchallenged as long as the RSI stays within its (smaller) ascending channel.

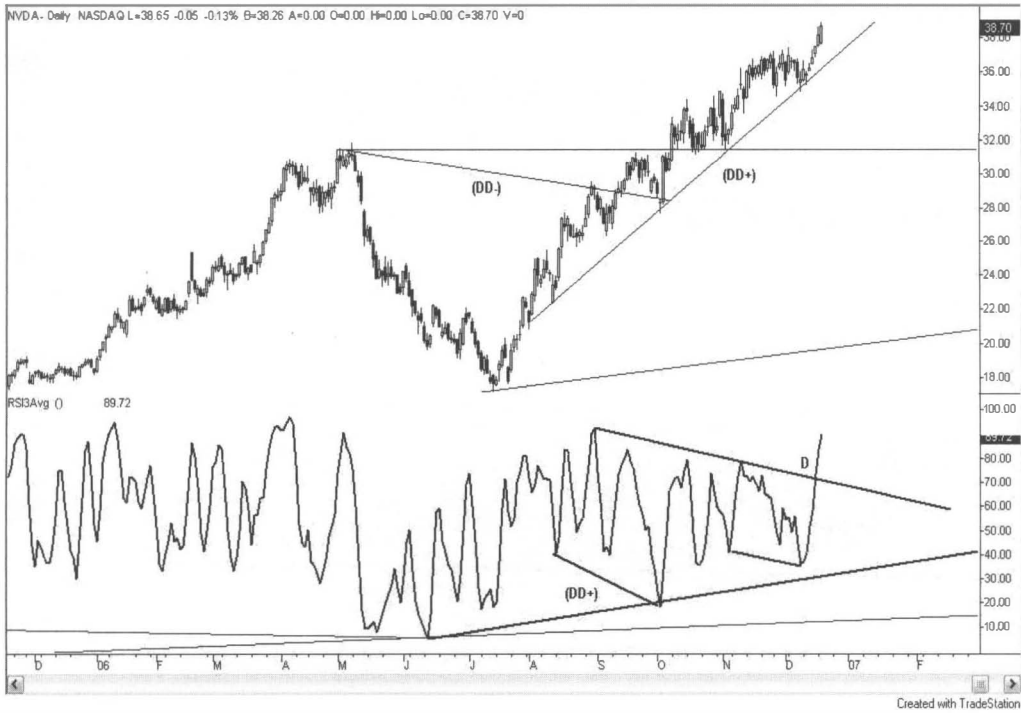


**Figure 5.112** Daily NVDA and RSI(14)

The RSI(14) breaks out from its descending sub-channel, continuing to show negative divergence at Point D and can be expected to continue up to the top of its descending Channel<sup>2</sup>. A mild downward correction is likely to cause a (DD+) signal at Point E (shown by the rectangle in the hourly chart). Later, if the RSI manages to break the larger scale negative divergence at Point F, it will signal that it is progressing within its ascending Channel Y-Z-F. This would confirm the hypothesis that a new ascending Channel<sup>2</sup> started at Point A.

We will need to monitor RSI behavior in the Point E area, because Line A-E defines the ascending sub-channel, and sooner or later, the RSI will start its down-leg inside a descending sub-channel. If the RSI manages to stay above Line Z-D-E, this may prove to be the lower boundary of that sub-channel; significantly higher prices will be seen before the RSI down-leg starts.

However, if the RSI drops below Line A-E too soon, a (DD+) signal should form in reference to Point B, which corresponds to a price decline. The former scenario is now more likely to unfold, given the RSI break-out at Point D.



**Figure 5.113** Daily NVDA with 3-day moving average of RSI(3)

The RSI(3) confirms the RSI(14) picture. At Point D, the RSI breaks out from the triangle that was defined earlier. The RSI reaches the 90-level but that does not mean that the rally has to end. In fact, a rise in RSI value from 90 to 97 corresponds to another strong price advance, while a small correction downward in price will send the RSI(3) back to the 50-level.



**Figure 5.114** Hourly NVDA

After the FAST (DD+), the RSI drops back into the previous RSI segment and rebounds off the channel bottom, forming a (DD+) signal below 40. Price drops to the stop-loss level at \$37. If the RSI continues upward from here, the rally will resume, but the formation of a (DD-) signal is possible.



**Figure 5.115** Hourly NVDA

The RSI reverses down from 60, forming a (DD-) signal. If it breaks below the ascending sub-channel, the (DD+) signal will be invalidated and the (DD-) signal will take effect. Price is testing the \$37 level again.



**Figure 5.116** Hourly NVDA

After the formation of the (DD-) signal, the RSI breaks the channel bottom and the (DD-) signal takes effect. Price breaks the \$37 stop-loss level. The attempted rebound at \$35 is still a potential (DD+) signal, but price breaks this (DD+) support line as well. The price drop exceeds 10% at this point!

The RSI is well within bearish territory. Any rebound will likely cause the formation of a new (DD-) signal in the ascending sub-channel defined by the most recent (DD-) signal and Line A. There is some positive divergence building along Line A. If the RSI breaks Line A, we can expect it to drop to the dashed (DD+) reference line. The Lighthouse level for this (DD+) is \$31.70. If the positive divergence is broken, a realistic price target will be \$32.



**Figure 5.117** Hourly NVDA

On close, the RSI manages to stay above Line A. However, in the price chart, price hits a low of \$32.30 before bouncing back. The upward correction that follows takes price to the underside of the triangle defined by (DD+) and (DD-) reference lines.

The RSI reverses down twice from the 60-level. Is an RSI Squeeze building at 60? Will the RSI remain within its ascending sub-channel? The rectangle indicates where the RSI could rebound, but there will not be a (DD+) signal at this point. If the RSI breaks below Line A, price could fall to new lows.



**Figure 5.118** Daily NVDA

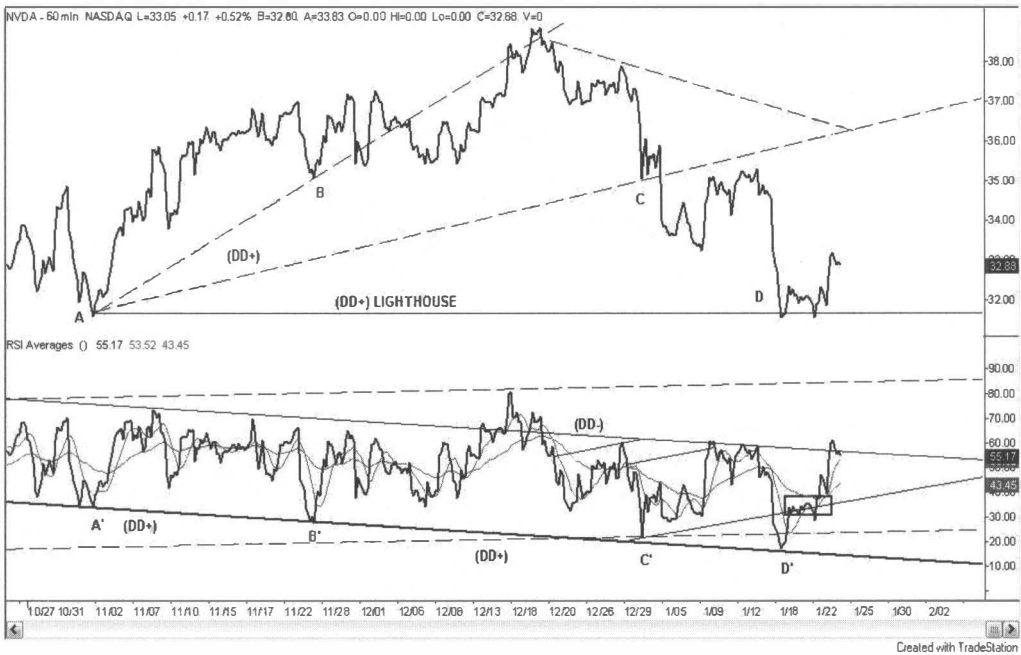
This shows the previous example, in the daily chart.



**Figure 5.119** Daily NVDA

Let's go back to the earlier Figure 4.22, in which two scenarios are painted. It looks like the bullish version is about to unfold as the RSI initially breaks the negative divergence Line Z-D. But price drops back from Point D, testing our stop-loss level at \$37. We previously discussed that the bearish scenario would unfold when the RSI broke below Line B-E and the RSI would likely drop to the (DD+) reference line going through Point B. In Figure 4.22, I labeled this potential target Point C.

The daily NVDA chart in Figure 5.119 shows what happens next. The RSI breaks below Line B-E and drops to the (DD+) reference line where it rebounds at Point G. In the hourly time frame, this rebound causes the formation of a (DD-) signal. In the daily chart, Point G is not on the lower boundary of the ascending sub-channel, so another decline is likely to form at this point. As the RSI is already in bearish territory, a slight decline in the RSI corresponds to a significant price drop, so we can expect a new low in price. This is in line with our earlier conclusion from studying the hourly charts.



**Figure 5.120** Hourly NVDA

In the hourly time frame, we were anxious to see whether the RSI was going to rebound from the bottom of its ascending sub-channel. The chart in Figure 5.120 shows exactly what happened

Notice the rectangle that indicates where a potential RSI rebound could occur. However, the RSI continues down vertically to the (DD+) reference Line A'-B'-C'-D'. The RSI drop to Point D' was expected in case the RSI did not rebound from the rectangle area. Not surprisingly, this drop takes price down to the (DD+) Lighthouse level. This is another example of what happens when the RSI fails to break out. The price rebound causes a new (DD-) signal and there is still the RSI Squeeze at the 60-level.



**Figure 5.121** Daily NVDA

The price drop to the (DD+) Lighthouse level in the hourly chart takes the RSI to the channel bottom in the daily where it rebounds. From Point G, the RSI could continue up to the Line Z-D-E, where a (DD-) signal will likely form. Looking at price, a possible textbook-scenario is certainly the resumption of the uptrend after price rebounds off the break-out level at \$31. For this to happen, we will need to see the RSI continue its leg upward to 80, breaking above the Line Z-D-E.

When this fails and the hourly (DD-) signal takes effect *and* the RSI breaks down below its channel boundary Line A-G, what can we expect? If we look at where the daily (DD+) originates in the price chart and plot some potential (DD+) reference lines, we must come to the conclusion that a drop to the \$25 area cannot be excluded when price breaks below the \$31 support level. The Lighthouse level for this daily (DD+) signal is \$21!



**Figure 5.122** Daily NVDA with RSI(3)

This is the daily RSI(3) chart that was studied earlier in Figure 4.14. Point D marks the break-out of the RSI after the (DD+) signal, but the RSI drops back to the (DD+) reference line. Point X is a good indicator of what happened. Price breaks our stop-loss level at \$37.

Point Z is well within bearish territory and the rebound causes the formation of a first (DD-) signal, which does not form in the RSI(14)! So this picture provides us with evidence that things may not be as clear-cut as they seem. Further evidence would be the inability of the RSI(3) to rise above 80. A reversal down below 80, coinciding with an initial (DD-) in the RSI(14), should make us very cautious.

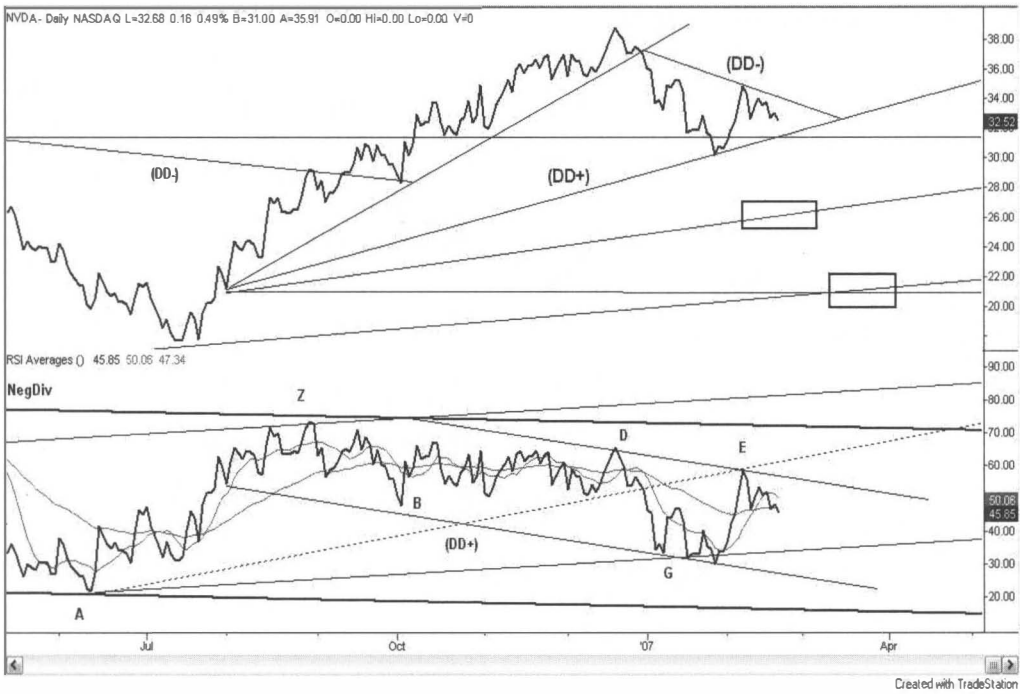


**Figure 5.123** Weekly NVDA

The RSI is well within bullish territory. The trend is up and a (DD+) signal has formed, so all is well. What could go wrong? The bearish scenario examined on the previous page could take the following turn in the weekly chart:

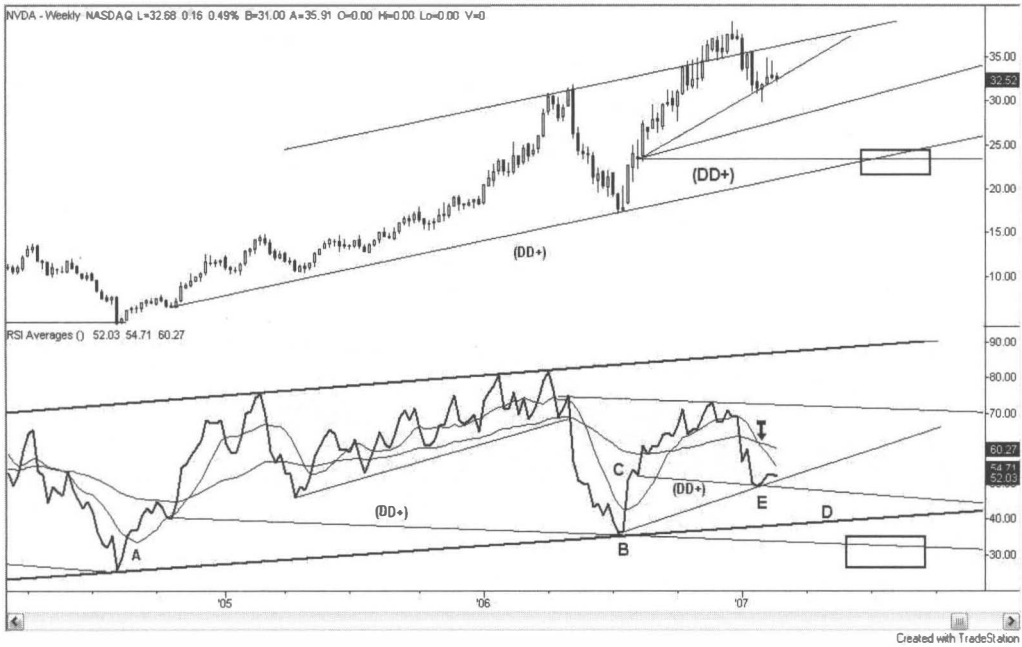
The RSI rises to the circled area, where it hits the declining 9-period moving average just below the bearish crossing point of the moving averages and reverses down. This could coincide with the formation of a (DD-) signal in the daily chart. The ensuing RSI drop should take the RSI to Point D, situated on the lower boundary of its ascending Channel<sup>2</sup>, around 40. If the RSI reverses up from Point D, the main (DD+) signal at Point B will remain valid and the rally can resume.

If the RSI breaks below Line A-B-D, we can expect it to drop to the rectangle area, which should correspond to \$23. Initially, we will need to monitor whether the RSI will be able to rise above its moving averages, which are crossing down overhead now.



**Figure 5.124** Daily NVDA (February 22, 2007)

*The daily time frame after a few weeks have passed.* The RSI finally reverses up from the area at Point G and pops up to Point E, where it reverses down. I have adjusted the upper boundary of the descending sub-channel. This new RSI picture can be summarized as follows: Within the descending sub-channel D-E-B-G, there is a (DD-) signal at Point E (along the dotted line A-E) and, at the same time, there is a (DD+) signal at Point G, which means that a triangle can be defined in the price chart. We will see the RSI continue down to Line A-G, (the lower boundary of the ascending channel), but if this line should be broken, we can anticipate a drop to Line B-G.



**Figure 5.125** Weekly NVDA

The RSI does not manage to rise to the anticipated moving average crossing point. The RSI moving average crosses down (as shown by the arrow) and the RSI reversal upward from Point E is not at all convincing. Still, there is a valid (DD+) signal at Points C-E, but the bearish crossing of the moving averages indicates that the RSI will be unable to stay above Line B-E. At this point, we must take into account that the RSI may drop to Point D.



Figure 5.126 Weekly NVDA (March 1, 2007)

This does not reflect the week's close. In this chart, the RSI is in the process of invalidating the recent (DD+) signal at Points C-E. This comes as no surprise as a (DD-) signal is detected in the daily chart.



**Figure 5.127** Daily NVDA (March 1, 2007)

The RSI moving averages cross downward in the daily chart as well as at the arrow. If the RSI drops below Line A-G, the (DD-) signal will take effect and the RSI will likely continue down to Point F, meaning a price drop to the \$28 area.

## APPENDIX 1. REFERENCES AND RECOMMENDED READING

L'ANALYSE TECHNIQUE, Pratiques & Méthodes (Economica, Paris, FR), by T. Béchu, E. Bertrand

DAY TRADE FUTURES ONLINE (John Wiley & Sons, NY, USA), by Larry Williams

DIRECT ACCESS FUTURES (John Wiley & Sons, NY, USA), by David I. Silverman

THE 21 IRREFUTABLE TRUTHS OF TRADING (McGraw-Hill, NY, USA), by John Hayden

MARKET MOMENTUM (McGraw-Hill, New York, USA), by Martin Pring

TECHNICAL ANALYSIS OF THE FINANCIAL MARKETS (Prentice Hall, NY, USA), by John Murphy

JAPANESE CANDLESTICK CHARTING TECHNIQUES (NYIF, NY, USA), by Steve Nison

RSI – THE COMPLETE GUIDE (Traders Press, Greenville, USA), by John Hayden

THE RSI EXPLAINED (Telerate Seminars, New Orleans, USA)– by Andrew Cardwell

NEW CONCEPTS IN TECHNICAL TRADING (Trend Research, McLeansville, USA), by Welles Wilder

STREETSMART GUIDE TO TIMING THE STOCK MARKET (McGraw-Hill, NY, USA)– by Colin Alexander

FOOLED BY RANDOMNESS (Thompson, NY, USA) – by Nassim N. Taleb

TECHNICAL ANALYSIS FOR THE TRADING PROFESSIONAL (McGraw-Hill, NY, USA)–by Connie Brown

Websites:

[BigCharts.com](http://BigCharts.com)

[TradeStation.com](http://TradeStation.com)

**All charts created on TradeStation®, flagship product of TradeStation Technologies, Inc.**

## APPENDIX 2. RSI MOVING AVERAGES FORMULA FOR TRADESTATION

Display RSI(14) Moving Averages 9SMA and 45EMA in TradeStation using following EasyLanguage formula:

```
Input: LENGTH(14),PERIOD(9),PERIOD2(45);  
Plot1 (RSI(Close,14), "Plot1");  
Plot2 (Average((RSI(Close,14)),9), "Plot2");  
Plot3 (XAverage((RSI(Close,14)),45), "Plot3");
```

After inserting the formula, have the system verify it. This is required, as TS will only list verified (compatible) inputs.

Use the style and color features in the Format Analysis Technique function to hide or highlight the RSI study (Plot1) or either of the Moving Average lines (Plot 2, Plot 3).

Display RSI(3) Study and 3-period Moving Average using following EasyLanguage formula:

```
Input: LENGTH(3),PERIOD(3);  
Plot1 (RSI(Close,3),"Plot1");  
Plot2 (Average((RSI(Close,3)),3),"Plot2");
```

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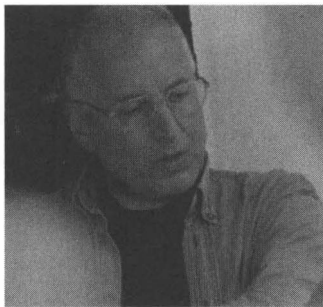
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### **About the Author**



Walter J. Baeyens, a native of Belgium, started pilot training in the Belgian Airforce at age 18. By 1975, he was flying supersonic F-104 Starfighters. He spent the last ten years of his military career in international staffs in various NATO HQs in Germany and Holland. After his retirement, he became a self-taught Intellectual Property consultant, employing three people. An occasional options trader since 1986, he made a “direct hit” in the 1987 stock market crash. In 2002, Mr. Baeyens sold his business and turned his full attention to the study of Technical Analysis, and in particular, of Welles Wilder’s Relative Strength Index (RSI).